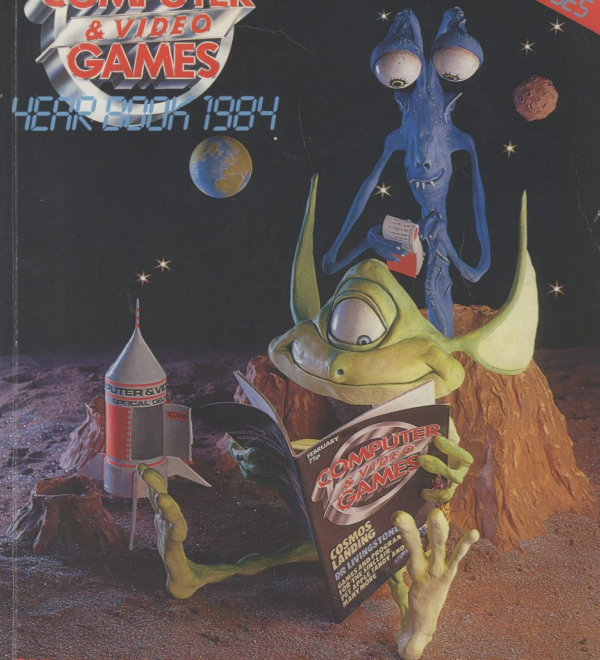


132
FUN PACKED PAGES

THE
**COMPUTER
& VIDEO
GAMES**
YEAR BOOK 1984



ZAP UP YOUR MICRO WITH FOUR GREAT SPACE GAMES

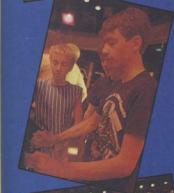
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MEET OUR CHAMP



Julian takes the arcade crown

The Computer & Video Games 1983 Arcade Championships were only decided during the last few seconds of the action in July's thrilling final day.

Eighteen finalists were invited to the plush Xenon nightclub to compete against one-another and Radio 1 DJ Dave Lee Travis.

Some of the finalists got up early that day to appear on the BBC's morning programme *Breakfast Time* for an unofficial championship warm-up.

Then the 18 split into six groups of three to tackle their favourite machines with the highest scorer moving onto the next stage of the competition.

This was played on a new machine saved especially for this competition by co-sponsors, arcade manufacturers Taitel. This was the graphically and musically awesome *Gyruss* unveiled by radio Luxembourg DJ Tony Prince and none of the finalists had a chance to play on it before the final.

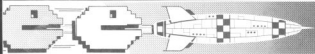
Hot favourite from the Isle of Wight, David Rosset then set the pace with a 72,000 score on the machine and it seemed cut-and-dried until the last finalist, Julian Rignall from Wales started to battle his way close to David's score.

And at the last gasp he overtook it

to notch 73,110 points and take the title.

Julian took a cocktail table version of *Galaga* back back to his home in Llangethio in Dyfed, Wales. He won his place in the final of the ever-green defender game which still attracted the most entries from arcade players across the country. The other games which made up the final were: *Donkey Kong*, *Donkey Kong Junior*, *Mr Do*, *Robotron* and *Amidar*.

Dave Lee Travis turned up at the end of the day to present the finalists with certificates, *Donkey Kong Junior* hand-held games-watches from CGL and Julian with his *Galaga* machine.



WELCOME TO THE YEARBOOK

Unfolding before your very eyes is the first-ever *Computer & Video Games Yearbook*.

We've used some of *Computer & Video Games* magazine's most potent resources to put together a book we think computer buffs will love.

The jewels of this collection are four marvellous games set in another distant galaxy and setting your computer alive with intrigue, action and adventure.

Keith Campbell wrote the fascinating adventure *The Vozspozian Affair*, set on a spacecraft.

Mike Singleton came up with *Interstellar Intrigue*, a game of diplomacy on a galactic scale, simple to play but so difficult to win.

Ron Potkin contributed *The Beacon Star Wars*, where two alien races struggle to capture the energy giving beacon stars.

And Pat Norris was the brains behind *Pirates & Polyps*, space arcade action but with room to think out your tactics.

We were so pleased with these games that we converted as many as were practical over a range of computers which include the BBC, Atari, Spectrum, Dragon and Vic-20.

In the spaces between the games we packed in features about computer gaming and the people who made the industry what it is. There's plenty of cartoon fun with those horrors the Bugs and Trevor Truran sets you Puzzling with his brain teasers.

SPACE ADVENTURES

INTERSTELLAR INTRIGUE.....21

Five hardened diplomats meet to share out the galaxy but each hopes to wrest complete control for himself. Take the part of Grakta the Bloodline delegate or Maachen the lizard from the Water Empire (up to five can play) as the fate of suns planets and fleets rests on your negotiating. Mike Singleton wrote this novel and tactical game for the Spectrum. And there are versions for the Dragon, BBC and Atari too. Illustrated by Stephen Gulbis. Can you take control of the galaxy when the might of four other empires is ranged up against you?

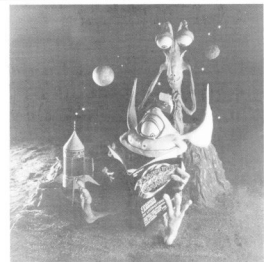


BEACON STAR WARS38

Two alien tribes discover the secret of the beacon stars and realise that whoever controls this sector of space will have a say in the running of the galaxy. Their fleets of mining ships and gun ships help the race to produce stargates around the discovered stars. But what are the incredible space scavengers and how will they affect the outcome? Written for the Dragon by Ron Potkin, it's a well balanced and tactical strategy game for two players. Converted onto the Spectrum too. Illustrated by John Higgins. Can you out-think and out-fight your opponent?

PIRATES & POLYPS.....52

The polyps are a rare and precious space commodity which you hope to attract down to your planet with a deep space scanner. But the pirates are out to steal the polyps away and to wreck your scanner and ground lasers. It's a battle of wits as you try to draw a bead on the pirate ships in the atmosphere and blow them out of the skies before they make off with a polyp — or worse — dive bomb your defences. Written by Pat Norris for the Spectrum we also have conversions for the Atari, Vic-20 and Dragon. Illustrated by Peter Harris. Do you blow up a pirate or pull down a polyp? It calls for fast wits as well as quick reactions.



It's not often that the special delivery rocket arrives on this lonely outpost of the galaxy. But when it does there's always a rush to see the latest issue of *C&VG*. This photograph was captured by the lens of Mike Goss and the two aliens were put together by Dorian Cross. We hope you get as much out of the yearbook as Dorian put into this marvellous model.



GAMES EXTRA

YAHTZEE.....92

Come on Bud, roll them dice! You know this game 'aint fixed. Join our disreputable team of dice-men.

3D MAZE100

Get lost! And then find your way home again. That's the aim of this challenging maze escape game. Mind-boggling frustration for Sharp owners.

METEOR ATTACK

.....110

Your city is in danger. A heavy shower of meteors is heading straight for it from the depths of space. Your mission is to destroy them before they destroy you! Space action on the Atari.

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Androids are on the loose again and threatening the safety of everyone in Vicville.

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A heart-rending tale of a Pac-Man who thought he was going to be left out of this Yearbook. Fun on the Spectrum.





THE VESPOZIAN AFFAIR68

D'Toon knew that she was on the verge of a great discovery, all the information was at her fingertips she just had to put two and two together. But if she makes her discovery will she be able to persuade Captain Bezel to change course to the right planets in time? How far can she trust Grakta — will he turn her over to the Bloodline Empire and can Machen be persuaded onto her side? An adventure with a real difference by Keith Campbell, where the action moves through space, goes beyond the ship and where some of the characters move independently. It was written for the Dragon but we converted it to the Atari, Dragon and BBC. Illustrations by David Pugh.



THE BIGGEST GAMES FACTORY16

When it comes to games, more games come out of the Atari factory in California than anywhere else. But how many ideas finish up in the bin and how do they spot the winners.

SOFTWARE HOUSE65

The processes which could put your game on the streets. How a software house deals with your tape and what you could earn. We talked to Visions about their games and programmes.



THE FUTURE OF GAMING107

In the future you will surrender all your senses to the game that comes into your home through a cable.

PINBALL CRAZY109

Tim Metcalfe is pinball crazy, but he's not the only one. We sent him down to meet a family who think more about flippers and drop targets than even he does.

DARK CRYSTAL129

We asked our magazine readers to draw a character or a scene from the fantasy Muppet movie, The Dark Crystal. Alan Outter was the winner and you can see just how he reproduced Jen the Gelfling on page 129. Then try it yourself on a BBC.



FEATURES

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The page you've already passed. Read about the thrills and spills of our 1983 Video Games Championships and the skills of Julian Rignall, our worthy winner.

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We shed new light on the real strategies and motives behind the great invasion and find out that despite suffering enormous losses, the green meanies actually won.

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Eugene Lacey talks to Dave Lawson, the programming brains behind Imagine Software.



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How do you get to the final screens of Raiders of the Lost Ark? What's the best way to tackle Pittfall Harry. Eugene Lacey tells you how to tackle your favourite games.

LICENCING104

It's big business and it's really taking off. Soon all your favourite book and film characters will be appearing on the small screen in computer or games centre form. Read about the million dollar deals which take them there.



THE REST

PUZZLING8

We asked Trevor Truran to set your Earthling brains enough puzzles to keep them busy until this time next year. Trevor starts Puzzling on page 8 and there are more on pages 12, 20, 106 and 128.



THE BUGS9

Every-so-often we have to kick ourselves to remember that the Bugs are the creations of cartoonist Elphn Lloyd-Jones They don't really exist in your computers. They go into action on pages 9, 14, 15 and 20. Ruining programmes, blowing up computers and planning chaos, just like they did in our computer room only last week. Maybe they are real after all!

EXPERTS18

Would you like to add some professional gloss to your computer programs? We asked some software experts to tell us how on their computers. Malcolm Evans of New Generation Software gets to grips with the Spectrum on page 18. Simon Hunt of English Software explains how to get the best from the Atari on page 66. And Nat and Franklin of Salamander Software tame the Dragon on page 90.

GLOSSARY120

Puzzled by computer jargon? We'll put a stop to all that. Robert Schifreen has composed the definitive computer glossary to take the jargon out of computers.

Editor Terry Pratt. Art editor Linda Freeman. Production Tim Metcalfe. Staff writer Eugene Lacey. Glossary Robert Schifreen. Advertisement manager Rita Lewis. Assistant advertisement manager Rob Cameron. Advertisement executive Louise Matthews. Advertisement assistant Louise Flockhart. Publishing director Tom Maloney. Published by Computer and Video Games, Durrant House, 8 Herbal Hill, London, EC1R 5EJ. Copyright © 1983 EMAP National Publications Ltd., Peterborough. Printed by East Midlands Litho Printers, Peterborough.

EVOLUTION OF THE

Was there motive behind the madness of the great 70s space invasion?

After some early success against the "untrained" defence forces, the later waves took an awesome hammering. Wave after wave was wiped out, sacrificed for the odd laser-base scalp — and still they kept coming.

For years the slaughter went on, some of the aliens began to look like the raw recruits they must have been, barely trained in the use of their lightning bolt missiles, before being rushed to the front line.

Reports of the carnage must have found their way back to the alien generals (or did too few saucer messengers get through), news that Earth's unofficial defenders were getting their collective eye in. Could it be that these losses were acceptable?

The common or guardian invader (*Invadus Nipponicus*) was having a hard time of it and then a new breed emerged in the scene. The advent of wings made saucers unnecessary and this new species made use of the swarming principle to become *Galaxians*. No longer the steady trudge through the stratosphere accompanied by the inevitable grunts, these aliens wheeled down depositing a steady stream of bombs, trapping defenders in corners and diving kamikaze-like upon them.

A new mutation and the world fell victim to *Defendus Americans*. The first game of a great series by Williams former designer Eugene Jarvis, he followed it with *Stargate* and finally *Robotron*, as the aliens switched their base from Japan to the U.S. for a short while.

But while the new aliens took over the space invaders' traditional territory in the arcades, the old enemy was planning a new campaign. It moved straight into the Earthly homes and setting up residence in the humans' previous major defence, the telly... a master stroke.

No more escaping from the meemies by rushing home to watch *Coronation Street*, the little devils were their waiting for you, courtesy of the home TV games centres.

Atari VCS aliens were a different shape but undoubtedly the same

In 1977, when the first unidentified grunts were heard in your local, the video games industry was born. It grew fat on the back of the space invasion, arcades sprang up, new manufacturers began creating alternative invasions and it blossomed.

Then came the pruning years of 1981-82, when the novelty wore off, leaving hardcore arcade go-ers who could spend hours on one 20p and those who flirted with new video games — a few 20ps a night in the pub.

Eye-catching graphics and sound effects which attracted attention, without driving everyone into the saloon bar, were produced.

With home TV games centres and personal computers forever narrowing the gap in time before they produce their own arcade look-alikes, new thrills have to be constantly found and computer games, in innovation and standards of graphics and sound.

breed: antennae wriggling, legs twitching and fighting in profile but invaders none-the-less.

And susceptible to earthly defenders, who cut them down in their droves. Could it be that the distant intelligence behind this concerted onslaught had made yet another error or tactical judgement — or was this manoeuvre more evidence of the subtle planning going on in some far corner of the cosmos?

The green meemies' master plan By Terry Pratt

Maybe so, because the next avenue of attack was a complete switch in tactics. No longer could mankind justify the slaughter of the galactic innocents by claiming that death was too good for the 'orrible little alien insects, who only had destruction in mind.

Pacman was different, all the characters were lovable. Here was a hero you could really relate to: a yellow featureless blob continually opening a black maw to sate his massive appetite.

Even the villains, the ghosts, were pretty cute: big doleful eyes and sweet names like "Blinky". Their mission might even have been misinterpreted as reasonable — to prevent Pacman from eating their world

to destruction. Subtly mankind had been switched from the side of the good guy to become the destroyer of good guys.

We took this change in good stead and soon ghosts were disappearing almost as fast as invaders had once done. But in Pacman we had a game which could actually cause us physical injury. Games were interspersed by finger soothing sessions, when caloused and bruised joints were nurtured back into shape ready for the next bout.

While Pacman took over our hearts in the arcades, the space invaders had found a new realm to conquer as they blasted their way into the home computer circuits.

At first this latest manifestation of invader was barely recognisable as the real thing. Many of them were featureless, even more, suffered from a slowness and jerkiness of movement which made them easy and unsatisfying targets.

Worse still, many of the early versions, could not even fire back and merely relied on getting to the bottom of the screen.

But they were still thriving in this new medium, and people were crying for more and better versions — eventually these poor recruits were replaced by creatures that could pass for the real thing and the galactic invasion continued apace — although still more young invaders were destined never to see their mothers again.

SPACE INVADERS

Pacman's insatiable appetite was also outgrowing the arcades as he munched and chewed his way onto the home screens. First he ignored the TV games centres by moving straight onto a variety of home computers. Then he backtracked to the Atari VCS system and arrived with a bang.

A whole new maze to wander and some flickering opponents to negotiate but Pacman was not a creature to let a change of environment ruin his appetite and the alien attack found itself with a new hero.

A heroine was not long in emerging as the attack was launched on the other half of humanity. Could women be tempted into the arcades by relating to Ms Pacman? Hardly a feminist heroine, despite insisting on the "Ms" part of her title. She had a bow in her "hair" and really just wanted to settle down and have baby Pacmen.

If women were the real target of Ms Pacman, then this was a setback to the cosmic intelligence's masterplan. Perhaps the real aim was to find a way of propagating Pacmen faster. Anyway, the male of the species took readily to Ms Pacman without worrying about role reversal, and turned it into a success.

Role reversal was fast approaching in another form. Donkey Kong pitted us against one of our favourite horrors, a mighty gorilla capturing a starlet and escaping to the top of a tall — if unfinished — building. We took the role of the poor carpenter Mario as he rushed to the starlet's rescue.

Then came Donkey Kong Junior and Mario was the enemy. A villain of the first degree, actually given the prefix wicked, who had locked up poor old Kong and was dealing out doom and destruction to the gorilla's heroic offspring as he tried desperately to rescue his Pa.

The Donkey Kong duo of games proved how fickle mankind's affections could be, we were putty in the hands of the great intergalactic game designer, if he told us black was white, we'd believe him.

It also reversed the trend of thousands of the enemy being wiped out for the odd one or two human

hero casualties. Now we were witness to the destruction of many Mario's without ever quite getting to grips with Kong.

And it also showed that the aliens producing these games had discovered our love of the cinema. They were giving us sequels like Space Invaders Part II and they were giving us heroes we already knew.

This trend continues to this day with Buck Rogers, Star Wars and Star Trek, being among the latest titles produced.

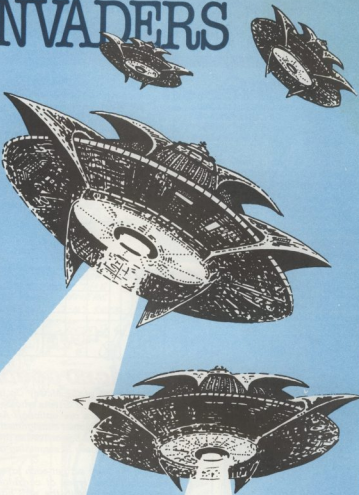
And the cinema played an even greater role in Tron, where the game was based on a film which was based on the game. And that fiction of film stars going inside the machine, is no being turned into fact by laser disc technology which uses

film clips to build up a game which switches the action to match the player's shooting and manoeuvring.

The alien intelligence has also moved back into its true colours, space creatures, as the new games prove: Xevious, Astron Belt, Mad Planets, Zaxxon, Gyruss...

The space invasion has been long, and it's been hard-fought and the casualties have been horrifying. But what have the invaders achieved at the end of it all?

Well, they succeeded where almost every film and fiction alien failed. They wormed their way into our culture, set up bases in our homes and in our social haunts and we've not only accepted their presence, we actually want to take the credit for it — in short, THEY WON!



PULLING

CRAZYKONG

Once again Dolores Devine has been foolish enough to join Crazy Kong on a sightseeing tour of the Empire State Building and is now standing somewhat reluctantly on the roof garden with her hairy host as he plays with a helicopter.

Only **Lizardlegs** can scale the building in time to save her and there just happens to be one safe way to the top.

Fortunately, by a coincidence a rare that you may be tempted not to believe it, the Christmas decorations in the office windows do mark out the route he must take.

Each symbol has a meaning. One represents UP, another DOWN, a third RIGHT and the fourth LEFT.

Just one snag — the symbols

change their meaning at each level and never have the same meaning again. So, whatever is, say UP on level one cannot be UP on levels two or three.

It may look an impossible task to find the only route and **Lizardlegs**, so adept at adhering to glass, is at a loss as to know how to begin his task. Can you help by marking out the one pathway?

It isn't as difficult a task as it looks

BY TREVOR TRURAN

and the grid may help — enter a cross for an impossible meaning for a sign and a tick when you know it for sure.

A little thought and you can guide our window wiping friend to the roof — but hurry, Dolores is screaming again and her voice has already put two TV stations off the air...

	U	D	R	L		U	D	R	L		U	D	R	L	
	P	W	N	T	T	P	W	N	T	T	P	W	N	T	T
															
															
															
															

DAMAGED GOODS

Another failing of the McCoy Co is their employment of drivers who believe that corners are optional. As you can see, the latest consignment of video favourites has arrived at the rear of the premises in something of a mess.

When the lorry set out each layer contained three types of cartridge but the collision with the wall has concertina-ed the contents.

The only good thing is that the letters of each game are still in their correct order, so, if you don't mind

lending a hand, you can name all twelve games and restore order from chaos.

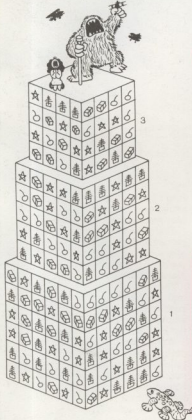
Otherwise the world will have to get used to **KOGRZERSH** in the Top Ten and no one will play a game with that name, will they?

Top Layer: **BERZERK TRICKSHOT FROGGER**

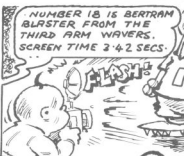
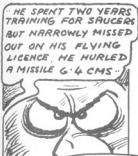
2nd Layer: **GALAXIANS PACMAN UTOPIA**

3rd Layer: **PHOENIX DRACULA PITFALL**

4th Layer: **MEGAMAN STARMASTER DEFENDER**



THE BUGS



The New Heroes

We take you to Liverpool to meet Dave Lawson the designer/programmer of Arcadia, Spectral Invaders, Spectral Spectres, Ah Diddums, and Schizoids.



Lawson: "I knew my work would be valuable one day"

IF there is one person in England who you could describe as the country's top games programmer it must surely be Dave Lawson.

Like a top pop star Dave, co-founder of Imagine, the Liverpool software house, can look back on a string of number one hit games.

But Dave's successes have not just been top selling games they have also been first in other respects.

Spectral Invaders was the first commercially produced game for the Sinclair Spectrum, *Space Warp* the first commercially produced game for the BBC, and Dave was also heavily involved in the controversial *Vic Men*, the first game for the Vic-20.

Soon after these games were produced Dave wrote one of Bug Bytes' all time greats — *Spectrum Spectres*. The money earned on *Spectres* enabled him to get into business for

himself with another ex-Bug Byte employee — Mark Butler — and so Imagine was born.

Shortly after the split with Bug Byte Dave was back at the keyboard but this time writing games for his own company. By last Christmas Imagine were able to launch their first game — *Arcadia*. The game was an instant hit on the Spectrum and has since been converted for the Vic-20 and the Commodore 64.

Pressure of running an expanding company has forced Dave away from the computer though he still found time to write *Ah Diddums*, released in January.

I managed to steal an hour out of his hectic schedule to find out a little about the man behind the games.

Born twenty-three years ago in Liverpool and educated at Quarrymount Secondary Modern, Dave left school and home at 15. "I lived with

friends and did odd jobs — anything really. It's easy to get jobs if you get the technique right. I spent the next two years hitch-hiking, sometimes by myself and sometimes with other people.

"When I was seventeen I joined the merchant navy as a trainee engineer. The next year and a half were spent at various colleges. It was boring. They make you spend about four years at college before you get anywhere near a ship."

The navy and Dave parted company in the summer of 1979 and he was back in Liverpool, back to the odd jobs and the hitch-hiking but this time much further afield — Spain, Italy, France and Germany.

He shrugs at the suggestion that hitch-hiking can be a lonely way of travelling: "It teaches you to be independent."

It was at this time that Dave's

interest in computers began. "I'm a compulsive reader. I read anything. I started reading electronics magazines especially Electronics Today International. I got interested in it because it seemed difficult. Eventually I saw an advert for a kit computer — a Nascom. I went straight out and bought one from Microdigital in Liverpool."

"It took me about a week to learn machine code. I didn't bother with basic. I couldn't see the point."

Dave was soon writing his own programmes and developed a sharp disapproval for the professional software currently available in the entertainment field. Of his own work at this time he was more confident. "I knew it would be valuable one day".

Valuable could be taken as something of an understatement from a man who has just taken delivery of a brand new Ferrari Mondial.

A Ferrari is hardly the choice of a modest man, although Lawson insists that the money is not his main motivation. "The money means nothing to me. It's the satisfaction of being the best. I feel proud of our games and proud of Imagine. We are also providing people with good quality products, which also gives me pleasure".

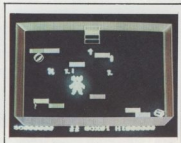
His current project is the setting up of what Dave calls a "software development environment". This is an ideal set of circumstances, tools, working conditions, programmers, and artists which collectively produce a good computer games production line.

"There is no quick way of writing a good game. We brain storm our programmers all day. Fire ideas at them. We now have two artists working on graphics for the games. In the ideal programming environment the artists and programmers would work together throughout the course of the project."

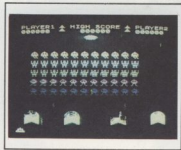
Since Imagine's launch less than twelve-months ago the company has spawned an advertising agency and there are half a dozen other companies in the pipeline.

Lawson believes in himself and partner Mark Butler. "I think we make a great team. I met him in Laskys. I was playing Star Raiders at the time and he came up to me as a salesman. Good game, he said. I'm going to write one much better I

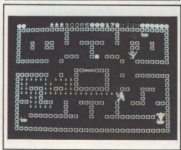
Arcadia, Spectres, and Spectral Invaders, "classics" that every Spectrum owner would want in his collection.



Ah Diddums



Spectral Invaders



Spectres

said."

In the short term Imagine will be continuing to produce games for the Spectrum and also for the Commodore 64 before the end of the year.

Lawson says his long term plans are: "To become the biggest software company in the world and to become a public company by 1985."

And with what he has achieved so far we're convinced that this software supremo will do just that.

Lawson's first job in the computer games came as a result of seeing an article about a comparatively unknown firm that had just moved to Liverpool.

The firm was called Bug Byte and Dave was invited to join the team after showing the firm's bosses how to use one of their new computers.

When the Spectrum first appeared all the software houses were racing to get the first game on sale.

Dave was Bug Byte's main hope in this race and after thirteen failed production models managed to write the game from a pre-printers copy of the Spectrum Users Manual. Bug Byte were gambling that the manual and Lawson's interpretation of it were one hundred per cent accurate. The gamble paid off and Spectral Invaders is to this day the most accurate copy of arcade Space Invaders available for the Spectrum.

Dave's talent for arcade cloning was to pay off again for Bug Byte when Dave wrote Vic Men, a straight take-off of Pac Man, for the then new Commodore machine. Unfortunately for Bug Byte the game had to be withdrawn in the face of a threat of legal action by Atari — the holders of the Pac Man copyright.

For Imagine the past nine months has been a period of unprecedented growth.

They have gone from a small office with three employees to a large office block in the centre of Liverpool with twelve employees.

Imagine's General Manager Bruce Everiss boasts proudly of "taking scousers off the dole". When we set up our own production and packaging facility we will take "first seven and then forty scousers off the dole".

Here at Computer and Video Games we reckon that Lawson and Imagine will be creating games that will keep them in the limelight for years to come.

PULLING

THE SPLURGS OF MOG

The story so far:

YOU are at the spot X surrounded by the usual mist which is so dense you cannot even see the feature you are on. You can go NORTH, SOUTH, EAST or WEST. In each direction there is another location and feature. Each location contains a right NASTY and all but one is armed with a fearful weapon with which to bring about your immediate destruction.

The odd creature out keeps a somewhat ineffective guard over a GOLD CASKET SPACE BAR



BUT ...
It is not sufficient to locate it, grab it and exit!
Your nearest and dearest companions are following behind and you must leave them complete details of just who is where and armed with what.

After studying the data you may find our grid helpful in sorting out the logical tangle. Put a X where a combination is impossible and a / for a positive connection. The immediate results from the first clue is already entered for you.

SPACE BAR



1. The GORGON is found in the SWAMP which is not to the SOUTH.
 2. The MOUNTAIN is due EAST of where you will find BEELZEBUB.
 3. The VAMPIRE has the GOLD CASKET and is not in the LAKE.
- SPACE BAR



4. The SWORD will be used against you in the FOREST and MEDUSA hangs about in the CAVES.

5. The HYDRA, which doesn't have the SWORD, is to be found to the NORTH-WEST of the spot where the POISON will have to be swallowed.

6. To the NORTH you will encounter an attack to the outer flesh and to the SOUTH you are up against an EVIL SPELL.



	X	NORTH	SOUTH	EAST	WEST	MEDUSA	BEELZEBUB	HYDRA	VAMPIRE	GORGON	GOLD CASKET	POISON	EVIL SPELL	FIRE	SWORD
FOREST															
MOUNTAIN															
CAVES															
SWAMP															
LAKE															
MEDUSA															
BEELZEBUB															
HYDRA															
VAMPIRE															
GORGON															
GOLD CASKET															
POISON															
EVIL SPELL															
FIRE															
SWORD															

WHO DIRECTION LOCATION WHAT WITH

WHO	DIRECTION	LOCATION	WHAT WITH
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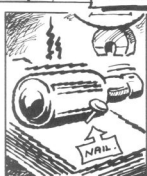
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BUGS



The Biggest Games Factory in the World

More games ideas are suggested, investigated and discarded at the Atari research and development complex at Sunnyvale in California than anywhere else on this planet. Eugene Lacey looks at the way the games are thought up, the processes they go through and why the ideas that survive have to be among the best around

The biggest games factory in the world is to be found at Sunnyvale, California, on the west coast of America.

That's the home of Atari's video games design plant where a team of over one hundred programmers, designers, and artists work unceasingly thinking up new ideas for/and developing video games.

The man responsible for running the whole operation is 37-year-old Condon Brown.

While many of you were asleep in your beds *Computer and Video Games* spoke by telephone to the man behind the games.

Fifteen years of experience in the computer business, that involved working as a programmer and eventually running his own consultancy, led Condon to be offered what many people consider as the top job at Atari one-and-a-half years ago.

"We eat, sleep, and breathe games at Sunnyvale . . . and it's not just at work . . . I seem to spend a lot of time at the breakfast table discussing a game . . . or some part of a game with my wife."

Does she ever get sick of it? Loud laughter. "Just occasionally."

The game design process is a mixture of formal, and informal discussion, involving a set team of people and a floating pool of specialists.

Brown sees three main categories of game: The coin operated arcade game conversions, such as Pac Man and Space Invaders, licensed games where the company buys the rights to use a well known character or story line, and totally original games thought up by Atari's designers.

Atari keep the numbers of games they have sold a very closely guarded secret though it is known that the arcade conversions are the best sellers. Pac Man is the most successful to date and is thought to have sold more than 10 million copies world wide.

Brown believes that the penchant for arcade conversions will not always be what the public wants and that the original games will become more popular.

To find good original ideas he arranges "brainstorming sessions" to attempt to tease out an idea from a group discussion. Between eight and 10 designers and programmers attend the meetings. "I use the terms

designer and programmer interchangeably . . . we try to set a theme for the meetings. It might be space adventure, maze, children's, or action games. These sessions can last anything from 1½ hour to all afternoon. Apart from time, place and theme we try to keep it informal."

Brainstorming sessions are an important part of the games factory output though Brown also stresses the importance of the individual flash of inspiration, "as many ideas come purely from one person as do from the brainstorming sessions."

Brown would like to see the whole company involved in the origination of new games process: "I regard the wider company as a potentially untapped resource."

Although the original games are often the most time consuming licensed titles and arcade conversions also present difficulties.

"We have to work within the limitations of the hardware — which usually means within the confines of the Atari VCS. Unlike the arcade machines which can constantly be improved in terms of their capabilities the VCS always remains the same."

"There is also the problem of trying to decide how licensed titles like *ET* & *Raiders of the Lost Ark* for example can best be used."





When Atari are convinced that an idea for a game is a good one the project is then handed down to a Cluster Group.

Each cluster group is made up of between five to eight people under the control of the cluster leader who in turn is responsible to Condon Brown.

Before an idea is assigned to a certain Cluster Group to turn it into a game a detailed Story Line and description of the game has to be produced for management approval.

This will contain detailed description of the gameplay, difficulty levels, and graphics together with precise market research to describe exactly whom the company believes will buy the game and why.

The next stage is to decide on a time scale for the completion of the project. This has to be flexible and games have taken from as little as five weeks to a year and a half to get into the shops. It is not only unforeseen technical difficulties that can put a project back — Atari also give careful thought to when is the right moment to put any given game on sale.

"We have to ensure that there is not a glut of games at one point in the year and a shortage at another."

There are usually as many as 10 games being developed at the same

time though not all of these are destined to go into full scale production.

The cluster groups are teams made up of various specialists: a sound engineer who works on sound effects, a graphic artist who works with the programmers, and a composer to make up musical jingles, theme pieces for the games. There are also individual specialists whom the cluster can seek advice from on any point.

These specialists often have long term projects of their own but are regarded as a shared resource by the cluster groups.

When a project is underway its progress is constantly monitored by the cluster leader. "There is lot of input into the group . . . particularly from software marketing . . . but the final responsibility for what the game will be like rests with the designers."

Condon Brown stresses the team approach to design but also believes that there is room within the structure for designers who prefer to work by themselves. He cites the case of Howard Warsaw who developed the *Raiders of the Lost Ark* game by himself. In an earlier interview Warsaw told *C&VG* how he worked out the conversion of the film into a video game after sitting through four screenings of the film.

The quality of Atari's games, like that of any other video game manufacturer, depends on the strengths of the design team. One thing, Brown has to come to terms with, is the tremendous amount of poaching that goes on in the industry.

"We pay very well and generally have the pick of the industry."

He does not believe there is any set type of designer that fits into the Atari mould. "They come from many different walks of life . . . and range from 17-year-olds to PHD's . . . the one thing they all have in common is an abiding fascination and love for computers."

"We try to select people with a proven track record and would normally expect some knowledge of advanced languages such as assembler language, and sequential processes . . . it is not important for a good designer to have a strong mathematics background."

The advanced knowledge the designers attain in the existing range of Atari computers means that their opinions are highly valued by the hardware researchers. "Because they have to work within the confines of set system they quickly start to think how much more they could put into a game if the computer had extra capacity in certain areas."

The conversion of games is a recent problem for the designers and a feasibility study has to be produced as early as possible in the development of the game if it is likely that Atari would want to market the game for other computer systems.

Not only games for specific systems but games for specific parts of the world designed to cater for the different culture and tastes.

The first of these games Astrisk and Obelisk was currently being under development when we spoke to Condon Brown. "It's based on the cartoon characters and is designed with the European market where they are particularly popular. It will be test launched in France later this year."

With several million Pac Man, Space Invaders, Galaxians and others too numerous to mention now in millions of homes there can be little doubt that the Sunnyvale plant is quite definitely the biggest games factory in the world.

And what does the man in charge of it all like to do to relax? "I enjoy a game of Defender". Careful with those smart bombs Condon.

Presentation on the

Malcolm Evans gets things moving

Malcolm Evans of New Generation Software probably knows the Spectrum as well as anyone.

Here, Malcolm gives you the benefit of all that experience as he undertakes to get a little animation going on the Spectrum.

Although the Spectrum has a character set fixed in its ROM, certain ASCII codes are not assigned to a particular character.

These can be defined by the user to be any chosen character and can then be printed either by entering graphics mode and using one of the letters from A to U, or by printing the character using CHR\$ which will output the specific ASCII code.

There are 20 user definable characters on a Spectrum and they occupy ASCII codes 144 to 164.

If you type PRINT USR("A") the machine will give the location of the first byte of graphics data. The first 8 bytes including that one will hold the data for the first character and so on. There are 20 characters which is 160 memory locations.

To calculate the actual data for the characters, you first need to design it on a piece of 8x8 squared paper. Each of the 64 squares can either be coloured in or left unshaded.

When you have finished designing your character you need to convert each horizontal row of coloured and empty squares into a binary number. To do this use the BIN function. Use a 1 for each coloured square and a 0 for each unshaded square. When you have your eight binary numbers then you simply poke the data into the memory like this ...

```
POKE USR("A"),BIN 10100010
POKE USR("A")+1,BIN 10001100
POKE USR("A")+2,BIN 01101100
```

And so on until you have poked in all 8 rows. This will continue until you reach USR("A")+7.

This defines user defined graphic character A. To define any others simply use USR("B"), then USR("C"), and so on.

This article outlines the use of user defined graphics, to achieve smooth



ILLUSTRATION 1

Illustration one shows two characters which form a larger figure.

Illustration two then gets him moving through four walking positions.



Position 1



Position 2



Position 3



Position 4

animation to enhance the graphics in your own programs, and continues to show how to extend the user defined graphic symbols far beyond the 21 characters in the Spectrum specification.

Pages 92-93 of the Spectrum manual outline the use of user defined graphics characters.

It is simple to combine such defined characters to form a larger figure. Figure 1 shows two such characters arranged to produce the figure of a walking man. If we were to draw such a figure on the screen and attempt to move it to the right it would appear to hop. Listing 1 shows a program to do just this.

Ideally we need to draw the figure moving smoothly across the character boundaries. This we can do by adding intermediate figure positions using four characters (2 wide by 2 high). Even when the figure is within the pair of characters, 4 are still necessary since a trailing pair of characters is required to blank out the remains of the figure as it is moved forward to the next character position on the screen.

Listing 2 shows one way of achieving the required animation. Lines 10-70 convert the picture data into

the user defined graphics A-P.

Another graphics character has been introduced to provide a ground plane. They have been entered in this manner so that it is easy to modify the pictures at any time. Line 1030 draws the four characters that make up the man quickly. There are two FOR-NEXT loops. N determines which of the four intermediate pictures is to be drawn, and M the position across the screen.

Using a similar method, it is possible to animate the figure to move in any direction. Each direction requires further User defined graphics characters. Since we have already taken up 17 of the 21 available, we must find some way of extending the capabilities of the Spectrum.

The beginning of the character set used by the Spectrum system is pointed to by a system parameter called CHARS at location 23606 and 23607.

This good piece of foresight of the Spectrum programmers allows the user to POKE into these locations to produce new character sets.

Listing 3 introduces another six characters to provide the pictures of the man falling. Since the size of the figure is one character wide and two high, by previous arguments it is necessary to use a set of characters three high to move the figure up or down. These additional characters are available since CHARS has been POKED to 30208 (location 23607 having been POKED to 118). The first usable character (CHR\$ 32) is at 30464. Only two intermediate positions are provided this time to speed up the fall rate.

To add some humour (even if it is sick) lines 1100-1240 have been introduced to complete the demonstration loop. The POKE at line 1200 is to amend the scroll count SCR CT to ensure that the subsequent prints of char\$ 36 (a blank) result in the screen being scrolled.

When you press BREAK to leave the loop you will still be in the alternative character set. Don't panic. Simply poke 23607,60, trying to ignore the gibberish that the basic system puts onto the screen, and the system will regain some form of intelligence.

SPECTRUM

```
1 REM "graphics 3"- man falli
ng
```

```
10 FOR n=0 TO 103
```

```
20 READ d: POKE 30464+n,d: NEX
T n
```

```
30 DATA 0,0,0,1,1,2,2,6,0,0,0,
128,128,0,0,0,7,7,6,14,26,34,18,
3,0,0,0,0,0,0,0: REM position
1
```

```
40 DATA 0,0,0,0,0,0,0,0,0,0,0,
96,96,128,128,128,0,0,0,0,1,1,2,
1,192,192,128,128,128,128,192,0:
REM position 2
```

```
50 DATA 0,0,0,0,0,0,0,0,0,0,0,
24,24,32,96,112,0,0,0,0,0,1,0,
168,168,32,0,136,136,4,128: REM
position 3
```

```
60 DATA 0,0,0,0,0,0,0,0,0,0,0,
6,6,8,28,26,0,0,0,0,0,0,0,42,7
2,24,20,36,66,130,131: REM posit
ion 4
```

```
70 DATA 255,0,0,0,0,0,0,0,0,
80 DATA 0,0,0,0,0,0,141,78,84,
56,56,16,16,48,48,112,80,80,152,
128,0,0,0,0: REM position f1
```

```
90 DATA 0,0,0,0,0,0,0,0,0,0,14
1,78,84,56,56,16,16,48,48,112,80
,80,152,128: REM position f2
```

```
800 POKE 23607,118
900 FOR x=0 TO 30
910 PRINT AT 9,x:CHR# 48: NEXT
x
```

```
1000 LET z=31
1010 FOR m=0 TO 30: FOR n=0 TO 1
5 STEP 4
```

```
1020 PAUSE 5
1030 PRINT AT 7,m:CHR# (32+n):CH
R# (33+n):AT 8,m:CHR# (34+n):CHR
# (35+n): NEXT n: NEXT m
```

```
1040 FOR y=7 TO 18: FOR n=0 TO 3
STEP 3
```

```
1050 PAUSE 1
1060 PRINT AT y,31:CHR# (49+n):A
T y+1,31:CHR# (50+n):AT y+2,31:C
HR# (51+n): NEXT n: NEXT y
```

```
1100 FOR n=0 TO 1: PAUSE 1: FOR
m=0 TO 1-n
1110 PRINT AT 19+n,31:CHR# (49+m
*3)
```

```
1120 FOR y=z TO z-9 STEP -1
1130 PRINT AT 21,y: INK 2:CHR# 4
8: NEXT y
```

```
1140 LET z=y: NEXT m: NEXT n
1150 PRINT AT 21,0: INK 2:CHR# 4
```

```
8: INK 2:CHR# 48:AT 20,31:CHR# 3
5:AT 21,31:CHR# 35
```

```
1200 POKE 23692,13
1205 FOR n=0 TO 11
```

```
1210 PRINT CHR# 35: NEXT n
1220 FOR n=22816 TO 22848
```

```
1230 POKE n,56: NEXT n
1240 GO TO 1000
```

```
1900 REM POKE 23607,60 to get
back to original character set
```

```
1 REM "graphics 1"- man
10 FOR n=0 TO 15
```

```
20 READ d: POKE USR "a"+n,d: N
EXT n
```

```
60 DATA 0,0,0,BIN 00000110,BIN
00000110,BIN 00001000,BIN 00011
100,BIN 00011010,BIN 00101010,BI
N 01001000,BIN 00011000,BIN 0010
0100,BIN 00100100,BIN 01000010,B
IN 10000010,BIN 10000011
```

```
1020 FOR n=0 TO 30
1030 PRINT AT 7,n: " ";CHR# 144:A
T 8,n: " ";CHR# 145: PAUSE 5: NEX
T n
```

```
1 REM "graphics 2"- man walki
ng
```

```
10 FOR n=0 TO 135
20 READ d: POKE USR "a"+n,d: N
EXT n
```

```
30 DATA 0,0,0,1,1,2,2,6,0,0,0,
128,128,0,0,0,7,7,6,14,26,34,18,
3,0,0,0,0,0,0,0: REM position
1
```

```
40 DATA 0,0,0,0,0,0,0,0,0,0,0,
96,96,128,128,128,0,0,0,0,1,1,2,
1,192,192,128,128,128,128,192,0:
REM position 2
```

```
50 DATA 0,0,0,0,0,0,0,0,0,0,0,
24,24,32,96,112,0,0,0,0,0,1,0,
168,168,32,0,136,136,4,128: REM
position 3
```

```
60 DATA 0,0,0,0,0,0,0,0,0,0,0,
6,6,8,28,26,0,0,0,0,0,0,0,42,7
2,24,20,36,66,130,131: REM posit
ion 4
```

```
70 DATA 255,0,0,0,0,0,0,0,0,
900 FOR x=0 TO 30
910 PRINT AT 9,x:CHR# 160: NEXT
x
```

```
1010 FOR m=0 TO 30: FOR n=0 TO 1
5 STEP 4
```

```
1020 PAUSE 5
1030 PRINT AT 7,m:CHR# (144+n):C
HR# (145+n):AT 8,m:CHR# (146+n):
CHR# (147+n): NEXT n: NEXT m
```

PUZZLING

PUZZLE PROG

This very basic computer program which, with very little adaptation, should run on most machines, asks you to sort out a tangled mess into four eight-lettered words.

At present the letters are stored in pairs in an array and you could, of course, produce the words:

COLOSSAL
CRIMINAL
COMPUTER
CALAMITY

on your screen just by changing the order of the pairs in the DATA statement.

This is definitely NON-U and is frowned upon. Anybody who would think that low would never reach their keyboard again!

You are invited having typed in the program, to RUN it; your screen should produce the array:

SS	MI	AL	IN
LO	CO	CA	IM
UT	AL	TY	ER
MP	CO	CR	LA

At each turn enter three INPUTs; A and B give the column and row of the array pair to be moved and C the

DUCKSHOOT

McCoy's, despite the name, is probably the cheapest software house ever to rent an accommodation address in downtown Dorking.

Indeed, the most expensive part of all their products is the cassette holder.

Still, their fairground replica does actually run although the ducks don't even waddle and only three players can fire their six shots before the inevitable program crash.

It so happened that Nigel, Jane and Tracey in their first attempt managed to hit one duck with each shot; the bird, quite properly, disappearing from the screen. After the final shot had demolished the eighteenth duck the display briefly showed that they had each scored the same total before all went blank.

If Tracey hit more 20's than Nigel who hit more 10's than Jane you can work out which six ducks each shot, can't you?



```

10 DIM AS(4,4)
20 FOR J= 0 TO 3
30 FOR K= 0 TO 3
40 READ AS(J,K)
50 PRINT TAB (4*J, 4*K) AS(J,K)
60 NEXT K
70 NEXT J
80 DATA SS, LO, UT, MP, MI, CO, AL, CO, AL, CA, TY, CR, IN, IM, ER, LA
90 PRINT: PRINT
100 INPUT A,B,C
110 MS=AS(A,B)
120 IF C=0 THEN AS(A,B)=AS(3-A,3-B): AS(3-A,3-B)= MS: GOTO170
130 IF C=1 THEN AS(A,B)=AS(B,A): AS(B,A)=MS: GOTO170
140 D=A+1: IF D>3 THEN D=4-D
150 E=B-1: IF E<0 THEN E=4+E
160 AS(A,B)=AS(D,E): AS(D,E)=MS
165 ***REM Whatever you need to CLEAR THE SCREEN HERE ***
170 FOR J= 0 TO 3
180 FOR K= 0 TO 3
190 PRINT TAB (4*J, 4*K)AS(J,K)
200 NEXT K
210 NEXT J
220 GOTO 90
    
```

● Note: \$=string sign



Five of the most powerful and influential beings in the galaxy meet on board the orbiting space station at Far Funus.

Their declared intention is to bring peace to the galaxy by settling their differences, over the negotiating table, diplomatically. Secretly, each of these warlike beings hopes to outwit the other four and seize control of the galaxy for his empire once and for all.

There's Bezel from the Pirate Empire resplendent in his burgundy and magenta robes but a creature none of the others would trust as far as they could have thrown his feared and awesome ship, the good vessel Vespozian.

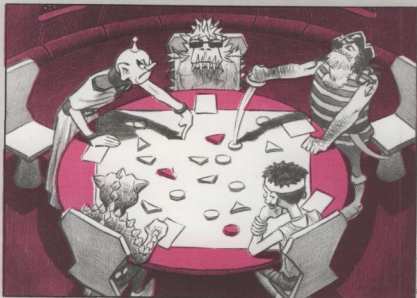


Illustration Stephen Gubia

INTERSTELLAR INTRIGUE

Negotiate and
manoeuvre your way to
control of the galaxy
By Mike Singleton

All of the others are at a disadvantage when haughty Shazax-Ka looks them in the eye. They dare not return the stare of this subtle diplomat from the powerful Sun Empire, for fear of being permanently blinded. He uses this advantage sparingly but his terrible frown falls most regularly on the ill-mannered Bezel.

In contrast, the brutish gesturing and roaring from infamously ill-tempered Tiaithan Lizard delegate Maachen, threatens to disrupt the proceedings at every turn. The others excuse his behaviour by making allowances for his being out of his natural amphibious

environment but they are not so quick to dismiss the threat his numerous blue-embled Water Empire forces pose.

No-one has ever discovered the name of the anonymous Ice Warrior, whose features remain hidden behind a glacier mask and whose grating voice is disguised by the crackling breathing apparatus that serves him on this mission. He represents the weak and much-scattered Dead Empire, whose voice at these proceedings is only heard because no other empire can take control of the inhospitable planets and dying stars where they live.

But while they look

down on the primitive resources of the Dead Empire and the irony that these most lifeless of beings have chosen vibrant green as the distinguishing colour of their poorly-equipped fleets, the others keep one wary eye on his ice-axe. And all know the value of an ally capable of inhabiting planets where no-one else can visit — let alone live.

Lastly comes Grakta of the Bloodline Empire. Traditionally the rulers of this galaxy and let none estimate his cunning which is the result of 27 generations of careful cloning.

His power relies on the Bloodline's long control of the stellar energy, but

now it is under fierce attack from all sides — yet knowing Grakta he may still win the day.

The five are sat around a board, with their base stars, outlying stars and fleets on it. As the fortunes of galactic war ebb and flow before them they argue, connive, ally and betray to gain the upper hand for their respective empires.

Any is capable of wresting complete control, but each must use the others in brief alliances, all will try to prevent any other from becoming too powerful. It's diplomacy on a cosmic scale for two-five players and no holds are barred.

THE RULES

TURNS

Players take it in turn to make their moves. The order of play is decided randomly by the computer at the beginning of the game. For each star a player owns at the beginning of his turn, he gets one movement point.

During his turn he uses these movement points in moving fleets, rotating fleets and firing at other fleets.

The player does not have to use all his movement points and in fact can use none if he so wishes. Movement points, however, cannot be "saved up" for the next turn. If they are not used, they are lost.

A player with no movement points misses his turn. This does not necessarily mean he is out of the game. If he still has some fleets left, the actions of another player may still enable him to capture a star without even moving and then he will find himself back in the game!

MOVING A FLEET

Moving a fleet one space costs one movement point. A fleet can only move into an adjacent empty space. A fleet must move forward, left or right.

It cannot move backwards. Once it has moved, it will be pointing in the direction it travelled. A player, of course, can only move his own fleets.

New fleets can be created at stars a player owns. To bring a new fleet into existence, the player simply makes a move from the star into an adjacent empty space. This move can be in any of four directions, north, east, south or west.

ROTATING A FLEET

Rotating a fleet costs one movement point. The fleet can rotate through 90 or 180 degrees. When rotating, the fleet remains in the same space and simply changes direction. To rotate a fleet, the player must own it.

FIRING AT A FLEET

Firing at a fleet costs one movement point. A player can fire from any star or fleet he owns at a fleet in an adjacent space. If he fires from a star, he can fire north, south, east or west. If he fires from a fleet, he must fire in the direction the fleet is pointing. The target fleet is always destroyed, even if it belongs to the player himself! Stars cannot be fired at or destroyed.

CHANGE OF OWNERSHIP

Ownership of a fleet or star can change as a result of movement, rotation or firing. It always depends on the new situation created by a player's action and any changes of ownership take effect immediately.

Ownership is determined by the fleets "attacking" that star or fleet. A fleet is said to be attacking another fleet or star when:

- 1) It is adjacent to that fleet or star.
- 2) It is pointing directly at that fleet or star.
- 3) If it is attacking a fleet, the two fleets **are not** pointing towards each other. A fleet cannot attack a fleet that is pointing towards it. Therefore, fleets pointing towards each other do not affect each other.

The following rules govern the ownership of stars and fleets:

- 1) If no fleets are attacking, ownership of a fleet or star does not change.

- 2) If there are **ONLY** neutral fleets attacking it, the fleet or star becomes neutral itself.
- 3) If each of the attacking players has an equal number of fleets attacking it, the fleet or star becomes neutral.
- 4) If any player has more fleets attacking it than any other player, then the star or fleet is captured by that player and becomes his star or fleet.
- 5) Neutral fleets are only counted as attacking fleets if no other players' fleets are involved.

Each move a player makes involves a potential change in ownership of surrounding fleets and stars. In certain situations, chain reactions can occur. Imagine, for example, a line of fleets pointing towards each other. If ownership of the first fleet in the line changes, this will cause ownership of the next to change and then the next again. Such changes take effect **immediately**, not just at the end of a player's turn.

DURING MOVEMENT OF A FLEET

- 1) Removes fleet from map. Checks for changes.
- 2) Puts fleet in new position. Checks for change in ownership of that fleet.
- 3) Checks for changes in ownership of newly attacked fleet or star and any connected fleets.

DURING ROTATION OF A FLEET

- 1) Rotates fleet. Checks for change in ownership of the star or fleet that **was** under attack.
- 2) Checks for change in ownership of rotated fleet.
- 3) Checks for change in ownership of newly attacked fleet or star.

AFTER FIRING

- 1) Check for change in ownership of fleet or star that the destroyed fleet **was** attacking.

All checks for changes in ownership always involve a check on any connected fleets or stars, so chain reactions may occur in any stage of the checking.

WINNING

The object of the game is to bring peace to the galaxy. The winner, therefore is the only player left who can make a move. To win, you must leave the other players with no stars and thus no movement points.

THE CONTROLS

C = CHOOSING
M = MOVING
R = ROTATING
F = FIRING
E = END YOUR TURN
S = SAVE THE GAME
ON TAPE

CURSOR KEYS are used for direction of movement, rotation or firing. They are also used to control the movement of the square cursor during the CHOOSING option.

In the CHOOSING option you can move the square cursor to any fleet or star you own. You can also choose any of the other options. When you choose to move, rotate or

fire, the fleet or star will begin to flash. Then you press a direction key and the action will occur. You return to CHOOSING automatically after rotation or firing but during MOVING you must return by pressing C.

E enables you to end your turn at any stage. But only when CHOOSING.

S enables you to save the game on tape at any stage. When loaded back in, the program will recreate the exact conditions that held when you pressed S. All you need to do after pressing S is give the saved game a filename.

```

1 DIM p%(6,10)
2 DIM x(4): DIM y(4): DIM n(7)
3 DIM n(7)
4 LET x(1)=1: LET y(1)=0
5 LET x(2)=0: LET y(2)=1
6 LET x(3)=0: LET y(3)=1
7 LET x(4)=1: LET y(4)=0
8 GO SUB 600
9 GO SUB 140
10 GO SUB 100
11 GO SUB 110
12 GO SUB 130
13 GO SUB 150
14 GO SUB 160
15 GO SUB 170
16 PAPER 0: BRIGHT 1: BORDER 0
17 CLS
18 GO SUB 160
19 LET p=2: LET lp=1
20 LET n=n(p): IF n=0 THEN GO TO 23
21 GO SUB 170: GO SUB 200: IF
22 s="s" THEN GO TO 30
23 LET lp=p
24 LET p=p+1: IF p=7 THEN LET
25 p=2
26 GO TO 20
27 REM -----
28 REM save game on tape
29 REM -----
30 INPUT "SAVING! GAME NAME =
31 IF LEN f$>10 THEN GO TO 3
32 SAVE f$ LINE 40
33 GO TO 21
34 REM -----
35 REM autostart saved game
36 REM -----
37 PAPER 0: BRIGHT 1: BORDER 0
38 CLS
39 RESTORE: GO SUB 100: GO SUB
40 160
41 GO TO 21
42 REM -----
43 REM read in graphics data
44 REM -----
45 FOR b=0 TO 159: READ n: POKE
46 EUSR "a"+b,n: NEXT b: RETURN
47 REM read in block data
48 REM -----
49 FOR b=1 TO 7: FOR y=1 TO 2:
50 READ b%(b,y): NEXT y: NEXT b: R
51 ETURN
52 REM -----
53 REM print block
54 REM -----
55 INK c: PRINT AT y%2,x%2-2,b
56 (b,1): PRINT AT y%2+1,x%2-2,b%(
57 b,2): RETURN
58 REM -----
59 REM read in start positions
60 REM -----
61 FOR c=2 TO 6: READ x,y: LET
62 s%(c,y)="5": IF n(c)=0 THEN GO
63 TO 132
64 LET c%(x,y)=STR$ c
65 NEXT c: RETURN
66 DIM b%(7,2,2)
67 DIM s%(16,10)
68 DIM c%(16,10)
69 FOR x=1 TO 16: LET s%(x)=""
70 6666666666: LET c%(x)=""
71 7777777777
72 NEXT x: RETURN
73 REM -----
74 REM generate starmap
75 REM -----

```



Illustration: Stephen Gubins

```

150 FOR s=1 TO 25
151 LET x=1+INT (RND*16): LET y
152 =1+INT (RND*10): IF s%(x,y)<"6"
153 THEN GO TO 151
154 IF x>1 THEN IF s%(x-1,y)<
155 "6" THEN GO TO 151
156 IF x<16 THEN IF s%(x+1,y)<
157 "6" THEN GO TO 151
158 IF y>1 THEN IF s%(x,y-1)<
159 "6" THEN GO TO 151
160 IF y<10 THEN IF s%(x,y+1)<
161 "6" THEN GO TO 151
162 LET s%(x,y)="5": NEXT s: RE
163 TURN
164 REM -----
165 REM print starmap
166 REM -----
167 FOR y=1 TO 10: FOR x=1 TO 1
168 LET b=VRL s%(x,y): LET c=VRL
169 c%(x,y): GO SUB 120: NEXT x: NEX
170 T y: RETURN
171 REM -----
172 REM print title & player
173 REM -----
174 BORDER p: PAPER p: INK 0: B
175 RIGHT 0: PRINT AT 0,0;p%(p),"
176 LLAR INTRIQUE " INTERSTE
177 171 PRINT AT 0,23:"MOVES=" :m:
178 INPUT ""
179 IF lp(>p THEN PAPER 0: BRI
180 GHT 1: RETURN
181 173 PRINT AT 0,10: FLASH 1: PAP
182 ER 0: INK 7: BRIGHT 1: " WINNER
183
184 174 FOR k=1 TO 50: DEEP ,1,9: B
185 EEP ,1,12: NEXT k
186
187 175 GO TO 175
188 REM -----
189 REM flash block & key test
190 REM -----
191 FLASH 1: LET c=p: LET b=VAL
192 s%(x,y): GO SUB 120
193 161 LET i$=INKEY$: IF i$="n" OR
194 i$="f" OR i$="m" OR i$="r" OR i
195 $="e" THEN RETURN
196 182 GO TO 181
197 REM -----
198 REM generate neutral fleets
199 REM -----
200 FOR s=1 TO 70
201 LET x=1+INT (RND*16): LET y
202 =1+INT (RND*10): IF s%(x,y)<"6"
203 THEN GO TO 191
204 LET b=1+INT (RND*4): LET n$
205 =x+(b): LET n$=y+(b): IF n$=0
206 OR n$=17 OR n$=0 OR n$=11 THEN
207 GO TO 194
208 193 IF c%(n$,n$)<"?" THEN LET
209 b=b-b
210 194 LET s%(x,y)=STR$ b: NEXT s:
211 RETURN
212 REM -----
213 REM select move location
214 REM -----
215 200 LET x=8: LET y=5
216 201 PRINT AT 0,10: FLASH 1: PAP
217 ER 0: INK 7: " CHOOSING ": DEEP
218 ,5,9
219 202 GO SUB 500
220 205 IF i$="n" THEN GO SUB 250
221 206 IF i$="f" THEN GO SUB 300
222 207 IF i$="m" THEN GO SUB 350
223 210 IF i$="e" OR i$="r" THEN R

```

ETURN

```

220 GO TO 201
247 REM -----
248 REM move fleet
249 REM -----
250 FLASH 1: PRINT AT 0,10; PAP
ER 0; INK 7; "MOVING FLEET"
251 LET I$=INKEY$: IF (I$="5" O
R I$="8") AND I$<"c" THEN GO T
O 251
252 IF I$="c" THEN RETURN
253 LET I$=VAL I$-4
254 LET nx=nx+c(1): LET ny=ny+c(
1): IF nx=0 OR nx=17 OR ny=0 OR n
y=11 THEN GO TO 251
255 IF S$(nx,ny)<"6" THEN GO
TO 251
256 IF b=5 THEN FLASH 0: GO SU
B 120: GO TO 261
257 IF i+b=5 THEN GO TO 251
258 LET ob=b: FLASH 0: LET c=7:
LET b=6: GO SUB 120
259 LET c$(x,y)=7: LET S$(x,y)
=STR$ b
260 LET b=bob: GO SUB 400
261 LET x=nx: LET y=ny: LET c=p
: LET b=1: FLASH 1: GO SUB 120:
LET c$(x,y)=STR$ c: LET S$(x,y)=
STR$ b
262 GO SUB 401: LET x=nx: LET y
=ny: LET c=VAL c$(x,y): LET b=1
263 GO SUB 400
268 FLASH 0: LET m=n-1: PRINT AT
0,30; BRIGHT 0; PAPER 0; INK 0
: " "
269 BEEP .4,12
270 IF m=0 THEN LET I$="e": FL
ASH 0: GO SUB 120: RETURN
275 IF c$(x,y)<STR$ p THEN FL
ASH 0: GO SUB 120: RETURN
280 GO TO 251

```

```

297 REM -----
298 REM rotate fleet
299 REM -----
300 FLASH 1: PRINT AT 0,10; PAP
ER 0; INK 7: "ROTATING "
301 LET I$=INKEY$: IF (I$="5" O
R I$="8") AND I$<"c" THEN GO T
O 301
302 IF I$="c" THEN BEEP .5,9:
RETURN
303 LET I$=VAL I$-4: IF I$=b THEN
GO TO 301
304 LET ob=b: FLASH 0: LET b=1:
GO SUB 120: LET S$(x,y)=STR$ b:
LET b=bob: GO SUB 400: LET b=1:
GO SUB 401: GO SUB 400
305 LET m=n-1: PRINT AT 0,30; B
RIGHT 0; PAPER 0; INK 0: " "
306 BEEP .4,12
307 IF m=0 THEN LET I$="e"
308 RETURN
347 REM -----
348 REM fire at fleet
349 REM -----
350 FLASH 1: PRINT AT 0,10; PAP
ER 0; INK 7: " FIRING "
351 LET I$=INKEY$: IF (I$="5" O
R I$="8") AND I$<"c" THEN GO T
O 351
352 IF I$="c" THEN BEEP .5,9:
RETURN
353 LET I$=VAL I$-4: IF I$<5 AND
I$>b THEN GO TO 351
354 LET nx=nx+c(1): LET ny=ny+c(
1): IF nx=0 OR nx=17 OR ny=0 OR n
y=11 THEN GO TO 351
355 IF S$(nx,ny)>"4" THEN GO T
O 351
356 LET ob=b: LET oc=c: LET ox=
x: LET oy=y: LET x=nx: LET y=ny
357 FOR f=1 TO 10: BEEP .05,15:

```

```

BEEP .05,10: NEXT f
358 LET I$=VAL S$(x,y): FLASH 0
LET b=6: GO SUB 120: LET S$(x,y)
="6": LET c$(x,y)=0: LET b=1
GO SUB 424
359 LET c=VAL c$(x,y): GO SUB
120: LET m=n-1: PRINT AT 0,30; B
RIGHT 0; PAPER 0; INK 0: " "
360 IF m=0 THEN LET I$="e"
361 RETURN
397 REM -----
398 REM check fleet or star
399 REM -----
400 LET ox=x: LET oy=y: LET ob=
b: LET oc=c: GO TO 424
401 LET ox=x: LET oy=y: LET ob=
b: LET oc=c
402 FOR k=2 TO 7: LET n(k)=0: "
EXT k: LET c1=0: LET c2=0: LET
n=0: LET hc=c: LET en=1
403 FOR d=1 TO 4: IF d=b THEN
GO TO 410
404 LET ax=x+c(d): LET ay=y+c(
d): IF ax=0 OR ax=17 OR ay=0 OR
y=11 THEN GO TO 410
405 LET av=VAL S$(ax,ay): IF d=
1 AND av<5 THEN GO TO 410
406 LET ac=VAL S$(ax,ay): LET
n(k)=n(k)+1: IF n(k)<hn OR ac<
7 THEN GO TO 410
407 IF n(k)<hn THEN LET en=1
GO TO 410
408 LET hn=n(ac): LET hc=ac: LET
en=0
410 NEXT d
411 IF en=0 THEN GO TO 420
412 IF hn>0 OR n(7)>0 THEN LET
hc=7
413 IF hc=c THEN GO TO 430
421 IF b=5 THEN LET m(c)=m(c)-
1: LET m(hc)=m(hc)+1

```

RUNS ON A BBC MODEL B. CONVERTED BY STEVE WILLIS

Loaded in two parts 1. "INTRIGE" 2. (loaded automatically by 1.) "INT#2"

The major problem with this conversion was the need to use the BBC MODE2 to gain the required colours for more than two players. Again this led to the further problem of needing 32 character width on a 20 character display.

The games uses all 32 characters, by displaying pair together, to give 16 large characters. Rearranging the characters to only use 16 meant a rather sick display. In the end I redesigned the Spectrum characters so that they can be overlapped.

This overlap is achieved by printing the left-hand character, then back spacing (using the VDUS graphics motion of the cursor) by a character width. Finally the right-hand half of the character is printed. Thus 2 characters which would take 128

pixels (2x64) now take 96 pixels (64 - 32 + 64). With 1280 pixels across this still isn't enough.

By then reducing the 'used' amount of each character in the direction to 5/8ths we further reduce the character to 80 pixels wide. This gives us 32 across! In the Y direction we have 32 available lines so there is no problem except to match the final shapes. This all sounds complicated but is achieved in the end by rewriting the character definitions in "INTRIGE" and then line 120 in "INT#2" does everything!

Now the second effect of using MODE2, is the lack of space available for variables; or to be more precise for string variables. This game in its original form used two large string arrays and this proved impossible on the BBC. This has been overcome by storing the display information, previously held in S\$(X,Y) & C\$(X,Y), by POKEing in the spare areas of the

```

10MODE7
20DIM P(6),M(7)
30REM " **ENTER PLAYERS** "
40CLS
50PRINTTAB(0,2)CHR$(131)CHR$(
157)
60FORI=3TO4:PRINTTAB(0,1)CH
R$(131)CHR$(141)CHR$(255)CHR$(25
5)CHR$(255): " INTERSTELLAR INT
RIGUE "CHR$(255)CHR$(255)CHR
$(255):NEXT

```

```

70PRINTTAB(0,5)CHR$(131)CHR$(
157)
80PRINT "TAB(4)" Designed by
Mike Singleton for "FORI=6TO7
:PRINTTAB(7)CHR$(141) " COMPUTER
& VIDEO GAMES":NEXT:PRINT " " B
BC micro translation by Steve Wi
llis"
90PRINTTAB(0,19) " THIS GAME C
AN BE PLAYED BY AS FEW AS " TWO
PLAYERS, OR AS MANY AS FIVE. "

```

```

422 LET C=0: LET C$(X,Y)=STR$
FLASH 0: GO SUB 120: BEEP 3,
43
IF b=5 THEN GO TO 430
434 LET X=X+(b): LET Y=Y+(b):
IF X=0 OR X=17 OR Y=0 OR Y=11 T
HEN GO TO 430
425 LET b=VAL $(X,Y): IF b=6 T
HEN GO TO 430
426 LET C=VAL C$(X,Y): GO TO 40
2
430 LET X=X: LET Y=Y: LET C=0
431 LET brob: RETURN
437 REM -----
439 REM cursor & key test
490 REM -----
500 FLASH 0: OVER 1: LET C=0: L
ET b=7: GO SUB 120
510 IF it=INKEY$: IF (1<="5" O
R 10<="9") AND 10<="9") AND 10<="9"
AND 10<="9" AND 10<="9" AND 10
0<="9" THEN GO TO 510
515 IF (1<="5" AND X=1) OR (10<="
9" AND X=16) OR (10<="7" AND Y=1
) OR (10<="6" AND Y=10) THEN GO
TO 510
520 IF (10<="5" OR 10<="8") AND C
$(X,Y)STR$ P AND 10<="e" AND 1
0<="9" THEN GO TO 510
521 IF "n" AND $(X,Y)>"4" T
HEN GO TO 510
525 GO SUB 120: OVER 0
526 IF 10<="e" OR 10<="s" THEN F
LASH 0: RETURN
530 IF 10<="5" OR 10<="8" THEN L
ET b=VAL $(X,Y): LET C=P: FLASH
1: GO SUB 120: BEEP 5,9: RETURN
540 LET I=VAL 10<="4: LET X=X+(X
1: LET Y=Y(1): GO TO 500
537 REM -----
539 REM enter players
590 REM -----
600 DIM p$(6,10): OVER 0: FLASH
0: BRIGHT 0: INK 7: PAPER 1: BO
DER 1: CLS

```

```

604 PRINT AT 0,3: INK 0: PAPER
6, "
605 PRINT AT 1,3: INK 0: PAPER
6, " INTERSTELLAR
INTRIGUE "
606 PRINT AT 2,3: INK 0: PAPER
6, "
610 PRINT : PRINT "Designed by
Mike Singleton for"
615 PRINT : PRINT " COMPUTER
& VIDEO GAMES"
620 PRINT AT 10,0: "This game ca
n be played by as few as two p
layers or as many as five. Plea
ase enter how many are people s
re going to play."
625 INPUT "Number of players =
": np: IF np<0 INT np OR np<2 OR n
p>5 THEN GO TO 625
630 PRINT AT 10,0: "You have cho
sen a ",np,"-player game.Please
enter each player's name.Up to n
ine letters are allowed for eac
h name."
635 PRINT AT 15,0:
640 FOR p=1 TO np
645 INPUT "Player's name = ": n$
IF LEN n$>9 OR n$="" THEN GO
TO 645
650 LET C=INT (RND*5)+2: IF p=C
$(X,Y) " THEN GO TO 650
655 LET n$(C)=1: LET p$(C)=n$: P
RINT p$(C)
660 NEXT p
665 PRINT : PRINT "Thankyou. Pl
ease wait a moment."
690 RETURN
4997 REM -----
4998 REM graphics data
4999 REM -----
5000 DATA 0,1,3,7,15,31,63,127
5010 DATA 0,128,192,224,240,248,
252,254
5020 DATA 254,252,248,240,224,19
2,128,0
5030 DATA 127,63,31,15,7,3,1,0
5040 DATA 0,7,31,63,127,127,1

```

```

27
5050 DATA 0,224,240,252,252,254,
254,254
5060 DATA 127,127,127,63,63,31,7
,0
5070 DATA 254,254,254,252,252,24
8,224,0
5080 DATA 15,15,15,15,15,15,15,0
5090 DATA 240,240,240,240,240,24
0,240,0
5100 DATA 0,15,15,15,15,15,15,15
5110 DATA 0,240,240,240,240,240,
240,240
5120 DATA 0,0,0,0,127,127,127,12
7
5130 DATA 127,127,127,127,0,0,0,0
5140 DATA 0,0,0,0,0,254,254,254,2
54
5150 DATA 254,254,254,254,0,0,0,0
5160 DATA 255,128,128,128,128,12
8,128,128
5170 DATA 255,1,1,1,1,1,1,1,1
5180 DATA 128,128,128,128,128,128,
128,128
5190 DATA 1,1,1,1,1,1,1,255
5197 REM -----
5198 REM block data
5199 REM -----
5200 DATA "so", "dp",
5210 DATA "k1", "dc",
5220 DATA "ab", "li",
5230 DATA "nb", "nc",
5240 DATA "ef", "sh",
5250 DATA " " , " " ,
5260 DATA "qr", "st",
5297 REM -----
5298 REM startup data
5299 REM -----
5300 DATA 0,1
5310 DATA 1,4
5320 DATA 16,4
5330 DATA 4,10
5340 DATA 13,10

```

computer where no Basic may venture.

For this I have used &A00 to &BFF and the program now FEELS and POKES these areas. The relationship is as follows:-

SS\$(X,Y) becomes ?(2816 + 10*X + Y%)

CS\$(X,Y) becomes ?(2560 + 10*X + Y%)

As X=16 & Y=10 are the maxima, one can calculate that there is an unused gap from 2731 to 2826. In fact these locations are used when saving a game (we will discuss this in a minute).

Thus the SS\$(X,Y) & CS\$(X,Y) strings have been replaced throughout and, as in all the games, X% & Y% etc. (integer variables) have been used. In fact as the data storage is numeric in the game this is more efficient than evaluating VAL (string) all the time as in the SPECTRUM version.

Now to SAVING and LOADING games. SAVING a game is achieved by storing a machine code dump of locations &A00 to &2AA in the file named "INTINT" on tape or disc. At the time a

SAVE is requested, the player's names, number of moves allowed, and player colours are loaded as an ASCII dump into the spare area from 2731 to 2816 (lines 31 to 38). The whole data stream is then SAVED.

The option of LOADING a saved game is selected at the start of the first program. If an "S" is entered instead of the number of players, then when the main program has loaded the player puts a previously saved game tape in the recorder and it will be loaded. The game is then running.

With tape storage several saved games can be stored on one tape or several tapes. However they are all called "INTINT" this could be modified if you wish quite simply. Both SAVE & LOAD work correctly to a disc system.

Finally PAGE has again been set to &1200 if a disc system interface is in use, or &E00 if not. This allows the use of MODE2 with disc versions of the game.

```

" PLEASE ENTER THE NUMBER OF PLA
YERS FOR" THIS GAME :- ( 5
FOR A SAVED GAME)"
95INPUTTAB(13,23) " ,N$
100IFN$="S"THEN N$="0" ELSE IF
VALCN$<2 OR VALCN$>5 THENVDUP:
GOTO90
110VDU23,224,0,0,6,6,14,30,62,
62
120VDU23,225,0,0,0,96,112,120,
124,124

```

```

130VDU23,226,124,124,120,112,9
6,96,0,0
140VDU23,227,62,62,30,14,6,0,0
,0
150VDU23,228,0,15,31,31,63,63,
127,127
160VDU23,229,0,240,248,248,252
,252,254,254
170VDU23,230,127,127,63,63,31,
31,15,0
180VDU23,231,254,254,252,252,2

```

```

48,248,240,0
190VDU23,232,6,6,6,6,6,6,6,0
200VDU23,233,240,240,240,240,2
40,240,240,0
210VDU23,234,0,6,6,6,6,6,6,6
220VDU23,235,0,240,240,240,240
,240,240,240
230VDU23,236,0,0,0,0,0,126,126
,126
240VDU23,237,126,126,126,0,0,0
,0,0
250VDU23,238,0,0,0,0,0,252,252
,252
260VDU23,239,252,252,252,0,0,0
,0,0
270VDU23,240,255,128,128,128,1
28,128,128,128
280VDU23,241,255,1,1,1,1,1,1,1
290VDU23,242,128,128,128,128,1
28,128,128,255
300VDU23,243,1,1,1,1,1,1,255
305VDU23,244,255,255,255,255,2
55,255,255,255
310P%=VAL(N%)
320IFPAGE<>&E00THENPAGE=&1200
330CHAIN"INT#2"
340END

```

>LIST

0MODE7

1DIMP(6),X%(4),Y%(4),N%(7),
M%(7),B%(7,2)

2X%(1)=-1:Y%(1)=0:X%(2)=0:Y%
(2)=1:X%(3)=0:Y%(3)=-1:X%(4)=1:Y%
(4)=0

3FORI%=1TO107:?(2816+I%)=0:
?(2560+I%)=0:NEXT

4NP%=P%:GOSUB110:IFNP%=0THEN
GOTO40

5FLASH=0

10GOSUB600

11GOSUB145

14GOSUB130

15GOSUB150

16GOSUB190

17REM**SCREEN COLOURS**

18GOSUB160

19P%=2:LP%=1

20M%=M%(P%):IFM%=0THEN23

21GOSUB170:GOSUB200:IFI#="S" T

HEN30

22C%=0:B%=7:FLASH=0:GOSUB120:
LP%=P%

23P%=P%+1:IFP%=7THENP%=2

24GOTO20

30MODE7:PRINTTAB(3,7)" THE GA
ME WILL BE SAVED WITH" TAB(9)" T
HE NAME INTINT"" PLEASE START
TAPE RECORDER AND WAIT"

3172816=NP%

32FORI%=1TONP%:IF LEN(P%(I%))



```

<10 THEN P%(I%)=P%(I%)+STRING$(1
0-LEN(P%(I%))," "):NEXT
33FORI%=2TO6:FORJ%=1TO10:?(27
31+J%+I%*10)=ASC(MID$(P%(I%),J%,
1)):NEXT:NEXT
3472802=LP%:72803=P%:FORI%=2T
06:?(2804+I%)=M%(I%):NEXT
35$SAVE"INTINT" 0A00 +01AA 0A
00

```

37PRINT"" PLEASE STOP THE
TAPE RECORDER "

38END

40CLS:PRINTTAB(2,6)" POSITION
THE FILE INTINT , THEN""
PLEASE START THE TAPE RECORDER":
\$LOAD"INTINT"

41NP%=72816

42FORI%=2TO6:FORJ%=1TO10:P%(I%
)=P%(I%)+CHR\$(?(2731+J%+I%*10))
:NEXT:NEXT

43LP%=72802:P%=72803:FORI%=2T
06:M%(I%)=?(2804+I%):NEXT

46FLASH=0:GOSUB160

47GOTO21

108REM **READ IN BLOCK DATA**

" 110RESTORE5200:FORB%=1TO7:FORY%
=1TO2:READB%(B%,Y%):NEXT:NEXT:R
ETURN

118REM **PRINT BLOCK**

120COLOR,C%+FLASH*8:MOVEX%*80-
80,(24-Y%*2)*40+40:PRINTCHR\$(ASC


```

(B*(B%,1))>+159);:PLOT0,-32,0:PRI
NCHR$(ASC(RIGHT$(B*(B%,1),1))>+1
59):MOVEX%#00-80,(23-Y%*2)*40+48
:PRINTCHR$(ASC(B*(B%,2))>+159);
125PLOT0,-32,0:PRINTCHR$(ASC(R
IGHT$(B*(B%,2),1))>+159):RETURN
128REM" **READ IN START POSITIO
NS**"

```

```

130FORC%=2TO6:READX%,Y%:(2816
+X%*10+Y%)*5:IFM%<C%>=0THEN132
131:(2560+X%*10+Y%)*C%
132NEXT:RETURN
138REM" **SET UP ARRAYS**"
145FORY%=1TO10:FORX%=1TO16:(2
816+X%*10+Y%)*5:(2560+X%*10+Y%
)*7:NEXT:RETURN
148REM" **GENERATE STARMAP**"
150FORS%=1TO25
151X%=RND(16):Y%=RND(10):IF?(2
816+X%*10+Y%)<>6THEN151
152IFX%>1THENIF?(2816+X%*10+Y%
-1)<>6THEN151
153IFX%<16THENIF?(2816+X%*10+Y
%+1)<>6THEN151
154IFY%>1THENIF?(2816+X%*10+(Y
%-1)<>6THEN151
155IFY%<10THENIF?(2816+X%*10+(
Y%+1)<>6THEN151
156:(2816+X%*10+Y%)*5:NEXT:RET
URN

```

```

158REM" **PRINT STARMAP**"
160MODE2:VDU5:FORX%=1TO16:FORX
%=1TO16:B%=(2816+X%*10+Y%):C%=(
2560+X%*10+Y%):GOSUB120:NEXT:NE
XT:RETURN

```

```

168REM" **PRINT TITLE & PLAYER
**"

```

```

170PROCWIPE(100):GCOL0,P%:MOVE
256,1000:PRINT"INTERSTELLAR":MOV
E384,964:PRINT"INTRIGUE":MOVE0,1
00:PRINTP$(P%):TAB(11)"MOVES=" ";
P%
171MOVE0,120:PLOT5,1200,120:MO
VE0,928:PLOT5,1200,928
172IFLP<>P%THENGCOL0,128:RETU
RN

```

```

173PROCWIPE(32):GCOL0,9:MOVE0,
64:PRINTTAB(6)"WINNER"

```

```

174SOUND1,-15,100,50:SOUND2,-1
5,53,25:SOUND3,-15,75,50:SOUND2,
-15,125,25:REM" **WINNING TUNE**"

```

```

175END
178REM" **FLASH BLOCK AND KEY
TEST**"

```

```

180C=P%:B%=(2816+X%*10+Y%):G
OSUB120

```

```

181I$=INKEY$(5):IFI$="N"ORIS$="
F"ORIS$="M"ORIS$="R"ORIS$="E"THENRE
TURNELSE181

```

```

188REM" **GENERATE NEUTRAL FLE
ETS**"

```

EXAMPLES OF ATTACKS

BEFORE



AFTER



No change because fleets are pointing towards each other.

Only a neutral fleet is involved. Therefore it effects ownership.

The red fleet is not actually attacking because the central fleet is pointing at it.

The red fleet is also attacking. Therefore the neutral fleet has no effect.

Red has a majority of attacking fleets, so ownership goes to red.

Example of a chain reaction.

```

190FORS%=1TO70
191X%=RND(16):Y%=RND(10):IF?(2
816+X%*10+Y%)<>6THEN191
192B%=RND(4):NX%=(X%+X%*B%):NY%
=Y%+Y%*B%:IFNX%=0ORNY%=17ORNY%
=0ORNY%=11THEN194
193IF?(2560+NX%*10+NY%)<>7THE
NB%=5-B%
194:(2816+X%*10+Y%)*B%:NEXT:RE
TURN
198REM" **SELECT MOVE LOCATION
**"
200X%=8:Y%=5
201PROCWIPE(32):MOVE384,32:GCO
L0,8:GCOL0,128:PRINT"CHOOSING":V
DU7
202GOSUB500
205IFI$="M"THENGOSUB250
206IFI$="R"THENGOSUB300
207IFI$="F"THENGOSUB350
210IFI$="E"ORIS$="S"THEN RETURN
ELSE201
248REM" **MOVE FLEET**"
250PROCWIPE(32):MOVE256,32:GCO
L0,8:GCOL0,128:PRINT"MOVING FLEE
T"
251I$=INKEY$(5):IFI$<"5"ORIS$
"8"ANDIS$<"C"THEN:GOTO251
252IFI$="C"THEN FLASH=0:C=P%:
B%=I%:GOSUB120:RETURN
253I$=VAL(I$)-4
254NX%=(X%+X%*(I%)):NY%=(Y%+Y%*(I%)):
IFNX%=0ORNX%=17ORNY%=0ORNY%=11T
HEN VDU7:GOTO251

```



```

255IF?(2816+10*NXX+NYX)<>6THEN
VDU7:GOTO251
256IFB%=5THENFLASH=0:GOSUB120:
C%=0:B%=7:GOSUB120:GOTO261
257IFIX+B%=5THENGOTO251
2580B%=B%:FLASH=0:C%=0:B%=?(28
16+X%*10+Y%):GOSUB120:B%=7:GOSUB
120
259?(2560+10*X%+Y%)=7:?(2816+1
0*X%+Y%)=6
260B%=0B%:GOSUB400
261X%=NX%:Y%=NY%:C%=P%:B%=IX%:F
LASH=1:GOSUB120:?(2560+10*X%+Y%)
=C%:?(2816+10*X%+Y%)=B%
262GOSUB401:X%=NX%:Y%=NY%:C%=?
(2560+10*X%+Y%):B%=IX%
263GOSUB400
268GOSUB2000
269VDU7
270IFM%=0THENIS="E":FLASH=0:C%
=P%:GOSUB120:RETURN
275IF?(2560+10*X%+Y%)<>P%THENF
LASH=0:C%=P%:?(2560+10*X%+Y%)=C%
:GOSUB120:RETURN
280GOTO251
298REM" **ROTATE FLEET**"
300PROCWIPE(32):MOVE384,32:GO
LO,8:GCOL0,128:PRINT"ROTATING":V
DU7
301IS=INKEY$(5):IF(I$<"5"ORIS>
"8")ANDIS<>"C"THEN301
302IFIS="C"THEN SOUND1,-15,3,1
0:RETURN
303IS=VAL(I$)-4:IFIS=B%THEN301
3040B%=B%:FLASH=0:C%=0:GOSUB12
0:B%=IX%:C%=P%:GOSUB120:?(2816+10
*X%+Y%)=B%:B%=0B%:GOSUB400:B%=IX%
:GOSUB401:GOSUB400
305GOSUB2000
307IFM%=0THENIS="E"
308RETURN
348REM" **FIRE AT FLEET**"
350PROCWIPE(32):MOVE448,32:GO
LO,8:PRINT"FIRING":VDU7
351IS=INKEY$(5):IF(I$<"5"ORIS>
"8")ANDIS<>"C"THEN351
352IFIS="C"THENVDU7:RETURN
353IS=VAL(I$)-4:IFB%<3ANDIS<>
B%THEN SOUND1,-15,1,5:GOTO351
354NX%=X%+X%(IX%):NY%=Y%+Y%(IX%
):IFNX%=0ORNX%=17ORNY%=0ORNY%=11T
HEN SOUND1,-15,1,5:GOTO351
355IF?(2816+10*NXX+NYX)>4THEN
SOUND1,-15,1,5:GOTO351
3560B%=B%:OC%=C%:OX%=X%:OY%=Y%
:X%=NX%:Y%=NY%
357SOUND0,-15,6,20
358IX%=(2816+10*X%+Y%):B%=IX%:F
LASH=0:C%=0:GOSUB120:?(2816+10*X

```

```

%+Y%)=6:?(2560+10*X%+Y%)=0:GOSUB
424
359C%=(2560+10*X%+Y%):GOSUB12
0:GOSUB2000
360IFM%=0THENIS="E":RETURN
361RETURN
398REM" **CHECK FLEET OR STAR*
**"
400OX%=X%:OY%=Y%:OB%=B%:OC%=C%
:GOTO424
401OX%=X%:OY%=Y%:OB%=B%:OC%=C%
402FORK%=2TO7:NX%(K%)=0:NEXT:C1
%=0:C2%=0:HN%=0:HC%=C%:EN%=1
403FORD%=1TO4:IFD%=B%THENGOTO4
10
404AX%=X%+X%(D%):AY%=Y%+Y%(D%
):IFAX%=0ORAX%=17ORAY%=0ORAY%=11T
HEN410
405AB%=(2816+10*AX%+AY%):IFD%
+AB%<5THEN410
406AC%=(2816+10*AX%+AY%):NX%(A
C%)=NX%(AC%)+1:IFNX%(AC%)<HN%ORAC%
=7THEN410
407IFN%(AC%)=HN%THENEN%=1:GOTO
410
408HN%=NX%(AC%):HC%=AC%:EN%=0
410NEXT
411IFEN%=0THEN420
412IFHN%>0ORHN%<7)0THENHC%=7
420IFHC%=C%THEN430
421IFB%=5THENMX%(C%)=M%(C%)-1:M
%(C%)=M%(C%)+1
422C%=HC%:?(2560+10*X%+Y%)=C%:
FLASH=0:GOSUB120:SOUND1,-15,17,5
423FLASH=0:SC%=C%:SB%=B%:CB%=0:
B%=7:GOSUB120:B%=SB%:CB%=C%:IFB%
=5THEN430
424X%=X%+X%(B%):Y%=Y%+Y%(B%):I
FX%=0ORX%=17ORY%=0ORY%=11THEN430
425B%=(2816+10*X%+Y%):IFB%=6T
HEN430
426C%=(2560+10*X%+Y%):GOTO402
430X%=OX%:Y%=OY%:C%=OC%:B%=OB%
:RETURN
498REM" **CURSOR & KEY TEST**"
500C%=8:B%=7:FLASH=0:GOSUB120
510IS=INKEY$(5):IF(I$<"5"ORIS>
"8")ANDIS<>"R"ANDIS<>"M"ANDIS<>
"F"ANDIS<>"E"ANDIS<>"S"THEN510
515IF(I$="5"ANDX%=1)OR(I$="8"AN
DX%=16)OR(I$="7"ANDY%=1)OR(I$="
6"ANDY%=10)THEN510
520IFC%<"5"ORIS>"8")AND?(2560
+10*X%+Y%)<>P%ANDIS<>"E"ANDIS<>
S"THEN510
521IFIS="R"AND?(2816+10*X%+Y%)
>4THEN510
525GOSUB120
526IFIS="E"ORIS="S"THENFLASH=0

```

```

:RETURN
530 IF I#<"5" OR I#>"8" THEN B%=?<28
16+10*(X%+Y%):C%=P%:FLASH=1:GOSUB
120: SOUND1,-15,9,10: RETURN
540 C%=0: B%=?<FLASH=0:GOSUB 120:
I%=VAL(I#)-4: X%=(X%+X% I%): Y%=(Y%+
Y% I%):GOTO 500
590 REM **ENTER PLAYERS**
600 CLS
630 CLS:PRINT TAB(3,6)" YOU HAVE
CHOSEN A ";NP%;" PLAYER GAME."
" PLEASE ENTER EACH PLAYER'S NA
ME, UP TO"" NINE LETTERS ARE AL
LOWED FOR EACH NAME."
640 FOR P%=1 TO NP%
645 PRINT TAB(0,10+P%*2)" NAME O
F PLAYER ";P%;" : -": INPUT N$: IFL
ENK(N#)>9 OR N#="" THEN PRINT TAB(0,10
+P%*2)STRING$(39," "):GOTO 645

```

```

650 C%=RND(5)+1: IF P%(C%)<>" " THE
N 650
655 M%(C%)=1: P%(C%)=N#
660 NEXT
665 PRINT " THANK YOU. PLEASE
E WAIT A MOMENT."
690 RETURN
1000 DEF PROC WIPE(U%)
1010 MOVE 0,U%:GCOL 0,0
1020 FOR Z%=0 TO 19: PRINT CHR$(244);
:NEXT
1030 END PROC
2000 PROC WIPE(100):M%=M%-1:GCOL 0
,P%:MOVE 0,100:PRINT$(P%):MOVE 70
4,100:PRINT"MOVES=";M%:RETURN
4233 FOR I%=1 TO NP%:FOR J%=1 TO 10:
5200 DATA A0,DP,KL,DC,AB,IJ,MB,NC
EF,GH,, ,QR,ST
5300 DATA B,1,1,4,16,4,4,10,13,10

```

RUNS ON AN ATARI 400/800. CONVERTED BY SIMON GOODWIN

In line 130 of this listing, the two string assignments are filled by pressing both Control and a comma symbol. The following four lines have certain sections to be printed in inverse video:—
165 all the print statements
1174 "Start" should be in inverse video
1620 the first print statement
1640 all print statements in inverse video
And in the following lines some unprintable characters must be entered in number form and must be turned back to character form.

Line 830 includes 104,162,6,169,7,160,64,32,92,228,96
This should be turned back to characters by using
FOR J=1 TO 11: READ A: ?CHR\$(A)::NEXT J
Line 160 includes 104,240,40,104,133,207,104,133,206,169,224,133,205,169,0,133,204,162,0,161,204,129
206,230,204,208,8,230,205,165,205,201,228,240,8,230,206,208,236,230,207,208,232,96,0
This should be turned back to characters by using
FOR J=1 TO 45: READ A: ?CHR\$(A)::NEXT J

```

100 DIM A$(1024),B$(10):RT=PEEK(106):POKE
106,RT-8:GRAPHICS 18:POKE 16,64:POKE 5
3774,64
110 PNB=(RT-8)*256:CHB=PNB+1024:UTAB=PEE
K(134)+PEEK(135)*256:ATAB=PEEK(140)+PEEK
(141)*256
120 OFFS=PNB-ATAB:HI=INT(OFFS/256):LO=OF
FS-HI*256:POKE UTAB+2,LO:POKE UTAB+3,HI
130 POKE 54279,RT-8:POKE 559,46:POKE 532
77,3:POKE 623,1:PY=568:A$(1)="":A$(1024
)=":A$(2)=A$
140 FOR J=708 TO J+3:READ A:POKE J,A:NEXT
J:POKE 704,88:FOR J=1 TO 10:READ A
145 B$(J,J)=CHR$(A):NEXT J
150 DATA 70,56,184,120
155 DATA 255,129,129,129,129,129,129,129
129,255
165 POSITION 3,N: ? #6;"interstellar":POS
ITION 5,1: ? #6;"intrigue":POSITION N,4: ?
#6;"COPYRIGHT C&UG 1983"

```

```

170 FOR J=CHB+24 TO J+87:READ A:POKE J,A
:NEXT J:OPEN #1,4,N,"K"
180 DATA 0,16,48,126,254,126,48,16
190 DATA 0,28,28,28,127,62,28,0
200 DATA 8,28,62,127,28,28,28,0
210 DATA 0,8,12,126,127,126,12,8
220 DATA 0,24,60,126,126,60,24,0
230 DATA 0,16,48,94,130,94,48,16
240 DATA 0,28,20,20,119,34,20,8
250 DATA 8,20,34,119,20,20,28,0
260 DATA 0,8,12,122,65,122,12,8
270 DATA 0,24,60,102,102,60,24,0
280 DATA 146,212,9,38,192,40,66,137
800 J=1536:DL=PEEK(560)+PEEK(561)*256:
KE DL+3,199:POKE DL+15,135:POKE 1790,1
POKE 1791,234:POKE 1788,N
810 READ A:IF A<-1 THEN POKE J,A:J=J+
60 TO 810
815 J=1700

```

```

820 READ A:IF A<0 THEN POKE J,A:J=J+1:
GOTO 820
900 DATA 72,173,253,6,240,11,173,255,6,14
41,10,212,141,22,208,104,64,173,254,6,14
1,10,212,141,22,208,238,253,6,104,64,-1
950 DATA 216,169,0,141,253,6,173,252,6,2
40,22,238,192,2,206,251,6,208,14,169,7,1
41,251,6,173,192,2,24,105,9,141,192
952 DATA 2,76,98,228,-1
1000 DIM P$(36),X$(4),Y$(4),NK(7),PK(7),S$(16
,10),CX(16,10),I$(1),SG$(7),Z$(6),NK(6),S$(
10)
1002 FOR J=1 TO 6:PK(J)=N:NK(J)=N:Z(J)=N:N
EXT J:P$(J)=PK(J):N=NK(J):N=S$+A$
1005 FOR J=1 TO 4:READ X,Y:X(J)=X:Y(J)=Y
:NEXT J:FOR J=1 TO 7:READ X:SG$(J)=X:NEXT
J
1007 DATA -1,0,0,1,0,-1,1,0
1008 DATA 9,130,162,167,2,135,34
1010 GOSUB 1600:GOSUB 1140:GOSUB 1130:60
SUB 1150:GOSUB 1190:POKE 756,RT-4
1012 POSITION N,N: ? #6;A$(1,20):POKE 708
,24
1013 POKE 512,N:POKE 513,6:POKE 54206,19
2
1017 GOSUB 1160:P=2:LP=1
1020 M=PK(P):IF M=N THEN 1023
1021 GOSUB 1170:GOSUB 1200
1022 LP=P
1023 P=P+1:IF P=7 THEN P=2
1024 GOTO 1020
1120 POSITION X,Y:IF B=6 THEN ? #6;"":R
ETURN
1121 ? #6;CHR$(SG(C)+B):RETURN
1130 FOR C=2 TO 6:READ X,Y:S(X,Y)=5:IF M
(C)=N THEN 1132
1131 CX,Y=C
1132 NEXT C:RETURN
1135 DATA 8,1,1,4,16,4,4,10,13,10
1140 FOR X=1 TO 16:FOR Y=1 TO 10:S(X,Y)=
6:CX,Y=Y:NEXT Y:NEXT X:RETURN
1150 FOR S=1 TO 25
1151 X=1+INT(RND(N)*16):Y=1+INT(RND(N)*1
0):IF S(X,Y)>6 THEN 1151
1152 IF X>1 THEN IF S(X-1,Y)>6 THEN 115
1
1153 IF X<16 THEN IF S(X+1,Y)>6 THEN 11
51
1154 IF Y>1 THEN IF S(X,Y-1)>6 THEN 115
1
1155 IF Y<10 THEN IF S(X,Y+1)>6 THEN 11
51
1156 S(X,Y)=5:NEXT S:RETURN
1160 FOR Y=1 TO 10:FOR X=1 TO 16:B=S(X,Y
):C=CX,Y:GOSUB 1120:NEXT X:NEXT Y:RETU
RN
1170 POSITION N,11: ? #6;CHR$(5+SG(P)):"
";P$(P)*8-5,P*(6);" MOVES=";M:IF LP<P TH
EN RETURN
1173 POSITION N,N: ? #6;" ** HINNER **"
:POKE 53248,N:FOR J=1 TO 500:NEXT J
1174 POSITION 3,4: ? #6;A$(1,13):POSITION
3,5: ? #6;" press start ":POSITION 3,6: ?
#6;A$(1,13)
1175 FOR J=1 TO 10:NEXT J:IF PEEK(53279)
=7 THEN 1175

```

```

1176 RUN
1180 C=P:B=S(X,Y):GOSUB 1120
1181 GET #1,A:I$=CHR$(A):IF I$="N" OR I$
="F" OR I$="M" OR I$="R" OR I$="E" THEN
RETURN
1182 GOTO 1181
1190 FOR S=1 TO 70
1191 X=1+INT(RND(N)*16):Y=1+INT(RND(N)*1
0):IF S(X,Y)>6 THEN 1191
1192 B=1+INT(RND(N)*4):NX=X+XB:NY=Y+YB
B):IF NX=N OR NY=17 OR NY=N OR NY=11 TH
EN 1194
1193 IF C(NX,NY)>7 THEN B=5-B
1194 S(X,Y)=B:NEXT S:RETURN
1200 X=8:Y=5:POKE 53248,112:PY=568:A$(5
,2,640)=A$:A$(PY,PY+9)=B$
1201 SOUND N,100,10,15:POSITION 3,N: ? #
6;CHOOSING "":SOUND N,N,N,N:GOSUB
500

```



```

1205 IF I$="M" THEN GOSUB 2000:GOSUB 124
0
1206 IF I$="R" THEN GOSUB 2000:GOSUB 130
0
1207 IF I$="F" THEN GOSUB 2000:GOSUB 135
0
1208 POKE 1788,N:POKE 704,88
1210 IF I$="E" THEN RETURN
1211 GOTO 1201
1240 POSITION 3,N: ? #6;"MOVING FLEET";
1242 GET #1,A:I$=CHR$(A):IF I$="C" THEN
RETURN
1244 IF I$="+" THEN I=1:GOTO 1254
1246 IF I$="-" THEN I=2:GOTO 1254
1248 IF I$="." THEN I=3:GOTO 1254
1250 IF I$="*" THEN I=4:GOTO 1254
1252 GOTO 1242
1254 NX=X+X(I):NY=Y+Y(I):IF NX=N OR NY=
7 OR NY=N OR NY=11 THEN 1242
1255 IF S(NX,NY)>6 THEN 1242
1256 IF B=5 THEN GOSUB 1120:GOTO 1261
1257 IF I=5 THEN 1242
1258 OB=B:C=7:B=6:GOSUB 1120

```

```

1259 C(X,Y)=7:S(X,Y)=B
1260 B=OB:GOSUB 1400
1261 X=NX:POKE 53248,48+8*X:A$(PY,PY+9)=
S:P=PY+8*Y:I:Y=NY:A$(PY,PY+9)=B:S=C:P:
B=1:GOSUB 1120:C(X,Y)=C:S(X,Y)=B
1262 GOSUB 1401:X=NX:Y=NY:C=C(X,Y):B=I
1263 GOSUB 1400
1268 SOUND N,200,10,15:M=M-1:POSITION 16
111? #6;M;" ":SOUND N,N,N,N
1270 IF M=N THEN I$="E":GOSUB 1120:RETURN
1275 IF C(X,Y)<P THEN GOSUB 1120:RETURN
1280 GOTO 1242
1300 POSITION 3,N:?" #6;" ROTATING "
1301 GET #1,A:I$=CHR$(A):IF I$="C" THEN
SOUND N,150,4,15:FOR J=1 TO 50:NEXT J:SO
UND N,N,N,N:RETURN
1302 IF I$="+" THEN I=1:GOTO 1320
1303 IF I$="=" THEN I=2:GOTO 1320
1304 IF I$="-" THEN I=3:GOTO 1320
1305 IF I$="*" THEN I=4:GOTO 1320
1306 GOTO 1301
1320 IF I=B THEN 1301
1321 OB=B:I=60SUB 1120:S(X,Y)=B:B=OB:G
OSUB 1400:B=I:GOSUB 1401:GOSUB 1400
1322 SOUND N,121,14,15:M=M-1:POSITION 16
111? #6;M;" ":SOUND N,N,N,N
1323 IF M=N THEN I$="E"
1324 RETURN
1350 POSITION 3,N:?" #6;" FIRING "
1351 GET #1,A:I$=CHR$(A):IF I$="C" THEN
SOUND N,150,4,15:FOR J=1 TO 50:NEXT J:SO
UND N,N,N,N:RETURN
1352 IF I$="+" THEN I=1:GOTO 1357
1353 IF I$="=" THEN I=2:GOTO 1357
1354 IF I$="-" THEN I=3:GOTO 1357
1355 IF I$="*" THEN I=4:GOTO 1357
1356 GOTO 1351
1357 IF B<5 AND I<>B THEN 1351
1358 NX=X+X(I):NY=Y+Y(I):IF NX=N OR NY=1
OR NY=N OR NY=11 THEN 1351
1359 IF S(NX,NY)>4 THEN 1351
1360 OB=B:OC=C:OX=X:OY=Y:X=NX:Y=NY
1361 FOR J=N TO 200 STEP 10:SOUND N,J,10
,15:NEXT J:SOUND N,N,N,N:GOSUB 1370
1362 I=S(X,Y):B=6:GOSUB 1120:S(X,Y)=6:C
(X,Y)=B:I=60SUB 1424
1363 C=C(X,Y):GOSUB 1120:M=M-1:POSITION
16,11? #6;M;" "
1364 IF M=N THEN I$="E"
1365 RETURN
1370 POSITION X,Y:?" #6;"-":FOR J=N TO 15
0 STEP 3:SOUND N,J,8,15:NEXT J:SOUND N,N
,N,N:RETURN
1400 OX=X:OY=Y:OB=B:OC=C:GOTO 1424
1401 OX=X:OY=Y:OB=B:OC=C
1402 FOR K=2 TO 7:N(K)=N:NEXT K:C1=N:C2=
N:M=N:H=C:EN=1
1403 FOR D=1 TO 4:IF D=B THEN 1410
1404 AX=X+X(D):AY=Y+Y(D):IF AX=N OR AY=1
OR AY=N OR AY=11 THEN 1410
1405 AB=S(AX,AY):IF D#AB<5 THEN 1410
1406 AC=C(AX,AY):NKAC=NKAC+1:IF NKAC<
N OR AC=7 THEN 1410
1407 IF NKAC=N THEN EN=1:GOTO 1410

```

```

1408 HN=NKAC):HC=AC:EN=N
1410 NEXT D
1411 IF EN=N THEN 1420
1412 IF HN=N OR NK7>N THEN HC=7
1420 IF HC=C THEN 1430
1421 IF B=5 THEN MKC)=MKC)-1:MKHC)=MKHC)
+1
1422 SOUND N,100,8,15:C=HC:C(X,Y)=C:GOSUB
B 1120:SOUND N,N,N,N
1423 IF B=5 THEN 1430
1424 X=X+X(B):Y=Y+Y(B):IF X=N OR X=17 OR
Y=N OR Y=11 THEN 1430
1425 B=S(X,Y):IF B=6 THEN 1430
1426 C=C(X,Y):GOTO 1402
1430 X=OX:Y=OY:C=OC:B=OB:RETURN
1500 REM CURSOR
1501 I=N:GET #1,A:I$=CHR$(A)
1502 IF I$="+" THEN I=1:GOTO 1515
1503 IF I$="=" THEN I=2:GOTO 1515
1504 IF I$="-" THEN I=3:GOTO 1515
1505 IF I$="*" THEN I=4:GOTO 1515
1510 IF I<>"R" AND I<>"M" AND I<>"F"
AND I<>"E" THEN 1501
1515 IF I=1 AND X=1) OR (I=4 AND X=16)
OR (I=3 AND Y=1) OR (I=2 AND Y=10) THEN
1501
1520 IF I=N AND C(X,Y)<P AND I<>"E" TH
EN 1501
1521 IF I$="R" AND S(X,Y)>4 THEN 1501
1526 IF I$="E" THEN RETURN
1530 IF I=N THEN B=S(X,Y):C=P:SOUND N,50
,4,15:FOR J=1 TO 10:NEXT J:C=P:SOUND N,N,N,N
:RETURN
1540 X=X+X(I):POKE 53248,48+X*8:IF Y(I)=
N THEN 1500
1550 A$(PY,PY+9)=S:P=PY+8*Y:I:A$(PY,P
Y+9)=B:Y=Y+Y(I):GOTO 1500
1600 POSITION 3,7:?" #6;"Press any key":G
ET #1,A
1620 ?" #6;";THIS GAME IS FOR 2 TO 5
PLAYERS:?" #6;?" #6;"HOW MANY SHALL PLAY
?" :N$=
1630 GET #1,A:A=A-48:IF A<2 OR A>5 THEN
1630
1640 NP=A:?" #6;"PLEASE ENTER EACH PLAY
ERS NAME - UP TO 5 LETTERS ARE ALLO
WED":X=N:Y=10:L=1:P=1
1650 POSITION X,Y:?" #6;?"
1660 GET #1,A:IF A=126 THEN 1700
1662 IF A=155 AND L=1 THEN 1660
1665 IF A=155 THEN L=1:GOTO 1800
1670 N$(L,L)=CHR$(A):L=L+1:IF L>6 THEN L
=1:GOTO 1800
1680 POSITION X,Y:?" #6;CHR$(A):X=X+1:GOT
O 1650
1700 POSITION X,Y:?" #6;" ":L=L-1:X=X-1:I
F X=N THEN X=N:L=1
1710 GOTO 1650
1800 C=INT(RND(N)*5)+2:IF Z(C,X)N THEN 1
800
1810 MKC)=1:Z(C)=1:P$(C#5,C#6)=N$P=P+
1:IF P>NP THEN 1900
1820 X=N:Y=10:POSITION X,Y:N$=" "
#6;N$:GOTO 1650
1900 ?" #6;";PLEASE WAIT 20 SECS":RETURN
2000 POKE 1787,7:POKE 704,4:POKE 1788,1
:RETURN

```

```

1 CLEAR5000,&H7000:Poke65495,0:GR=&H7000:ML=&H7020:GOSUB60100
2 DIMX(4),Y(4),N(7),M(7)
3 X(1)=-1:Y(1)=0
4 X(2)=0:Y(2)=1
5 X(3)=0:Y(3)=-1
6 X(4)=1:Y(4)=0
7 DEF FNCC(D)=VAL(MID$(C$(X),Y,1))
8 DEF FNSS(D)=VAL(MID$(S$(X),Y,1))
9 DEF FNCL(D)=VAL("&H"+MID$(.Aaffa5f5a0",2*(P-1),2))
10 DEF FNIK(D)=(I$="")OR(INSTR(AR$+"C",I$))=0
11 AR$=CHR$(B)+CHR$(10)+CHR$(9)+CHR$(94)
12 DEF FNAR(D)=VAL(MID$("5687",INSTR(AR$,I$),1))-4
15 GOSUB600:GOSUB140:GOSUB110:GOSUB130:GOSUB150
16 GOSUB190 'NEUTRAL FLEETS
17 PHODE3,1:PCLS2:SCREEN1,0:CL=85:GOSUB60005:M$="INTERSTELLAR@IN
   TRIGUE":GOSUB61000
18 GOSUB160
19 P=2:LP=1
20 M=M(P):IFM=0THEN23
21 Q$=INKEY$:GOSUB170:GOSUB200
22 LP=P
23 P=P+1:IFP=7THENP=2
24 GOTO20
50 OC=C:OB=B:C=1:B=6:GOSUB120:C=OC:B=OB:RETURN
55 GOSUB50:GOTO120
110 GOTO5200
120 DRAW"BM"+STR$(16*(X-1))+","+STR$(16*(Y-1))+B$(B,C):RETURN
130 NA$="START":GOSUB60010:FORC=2TO6:READX,Y:MID$(S$(X),Y,1)="5"
   :IFM(C)=0THEN132
131 MID$(C$(X),Y,1)=MID$(STR$(C),2)
132 NEXTC:RETURN
140 DIMB$(7,7)
141 DIMS$(16)
142 DIMC$(16)
145 FORX=1TO16:S$(X)=STRING$(10,"6"):C$(X)=STRING$(10,"7"):NEXTX
   :RETURN
150 FORS=1TO25
151 X=RND(16):Y=RND(10):IF FNSS(0)<>6THEN151
152 IFX>1THENIFMID$(S$(X-1),Y,1)<>"6"THEN151
153 IFX<16THENIFMID$(S$(X+1),Y,1)<>"6"THEN151
154 IFY>1THENIFMID$(S$(X),Y-1,1)<>"6"THEN151
155 IFY<10THENIFMID$(S$(X),Y+1,1)<>"6"THEN151
156 MID$(S$(X),Y,1)="5":NEXTS:RETURN
160 LINE(0,161)-(255,161),PSET:FORY=1TO10:FORX=1TO16:B= FNSS(0):
   C= FNCC(0):GOSUB120:NEXTX,Y:RETURN
170 IFLP=P THEN173ELSECL=FNCL(0):GOSUB60005:CL=85:G=100:GOSUB185
   :GOSUB60005:M$=P$(P)+"@MOVES"+STR$(M)
171 IFINKEY$=""THENGOSUB61000:GOSUB185:GOTO170
172 RETURN
173 CL=85:G=100:GOSUB60005:GOSUB185:M$=P$(P)+"@WINNER":GOSUB6100
   0:GOSUB185:PLAY"TS0ABCDE":IFINKEY$=""THEN173ELSERUN
176 Q$=INKEY$:IFQ$=""THEN176ELSERETURN
185 FORG=1TOG:NEXTG1:RETURN
190 FORS=1TO70
191 X=RND(16):Y=RND(10):IF FNSS(0)<>6THEN191
192 B=RND(4):NX=X+X(B):NY=Y+Y(B):IFNX=0ORNX=17ORNY=0ORNY=11THEN1
   94
193 IF FNCC(0)<>7 THENB=5-B

```



```

194 MID$(S$(X),Y,1)=MID$(STR$(B),2):NEXTS:RETURN
200 X=8:Y=5
201 M$="CHOOSE MV"+STR$(M):GOSUB697:SOUND100,3
202 GOSUB500
205 IFI$="M"THENGOSUB250
206 IFI$="R"THENGOSUB300
207 IFI$="F"THENGOSUB350
210 IFI$="E" THENRETURN
220 GOTO201
250 M$="MOVING@FLEET":GOSUB697
251 I$=INKEY$:IF FNIK(0)THENGOSUB55:GOTO251
252 IFI$="C"THENRETURN
253 I=FNAR(0)
254 NX=X+X(I):NY=Y+Y(I):IFNX=0ORNX=17ORNY=0ORNY=11THEN250
255 IFMID$(S$(NX),NY,1)<>"6"THEN250
256 IFB=5 THENGOSUB120:GOTO261
257 IFI+B=5THEN250
258 OB=B:C=1:B=6:GOSUB120
259 MID$(C$(X),Y,1)="7":MID$(S$(X),Y,1)=MID$(STR$(B),2)
260 B=OB:GOSUB400
261 X=NX:Y=NY:C=P:B=I:GOSUB120:MID$(C$(X),Y,1)=MID$(STR$(C),2):M
ID$(S$(X),Y,1)=MID$(STR$(B),2)
262 GOSUB401:X=NX:Y=NY:C=FNCC(0):B=I
263 GOSUB400
268 M=M-1:GOSUB699
269 PLAY"T100BCFEGD"
270 IFM=0THENI$="E":GOSUB120:RETURN
280 GOTO250
300 M$="ROTATING":GOSUB697
301 I$=INKEY$:IF FNIK(0)THENGOSUB55:GOTO301
302 IFI$="C"THENSOUND1,1:RETURN
303 I=FNAR(0):IFI=B THEN300
304 GOSUB500:B=I:C=OC:GOSUB120:MID$(S$(X),Y,1)=MID$(STR$(B),2):B=
OB:GOSUB400:B=I:GOSUB401:GOSUB400
305 M=M-1:GOSUB699
306 PLAY"T50AF"
307 IFM=0THENI$="E"
308 RETURN
350 M$="FIRING":GOSUB697
351 I$=INKEY$:IF FNIK(0)THENGOSUB55:GOTO351
352 IFI$="C" THENSOUND1,1:RETURN
353 I=FNAR(0):IF(B<>5)AND(I<>B)THEN350
354 NX=X+X(I):NY=Y+Y(I):IFNX=0 OR NX=17 OR NY=0 OR NY=11 THEN350
355 IF MID$(S$(NX),NY,1)>"4" THEN350
356 OB=B:OC=C:OX=X:OY=Y:X=NX:Y=NY
357 PLAY"T20ABDEFBA"
358 I=FNSS(0):OC=C:B=6:C=1:GOSUB120:MID$(S$(X),Y,1)="6":MID$(C$(
X),Y,1)="0":B=I:GOSUB424
359 C=FNCC(0):GOSUB120:M=M-1:GOSUB699
360 IFM=0 THENI$="E"
400 OX=X:OY=Y:OB=B:OC=C:GOTO424
401 OX=X:OY=Y:OB=B:OC=C
402 FORK=2TO7:N(K)=0:NEXTK:C1=0:C2=0:HN=0:HC=C:EN=1
403 FORD=1TO4:IFD=B THEN410
404 AX=X+X(D):AY=Y+Y(D):IFAX=0 OR AX=17 ORAY=0 OR AY=11THEN410
405 AB=VAL(MID$(S$(AX),AY,1)):IFD+AB<>5THEN410
406 AC=VAL(MID$(C$(AX),AY,1)):N(AC)=N(AC)+1:IFN(AC)<HN OR AC=7TH
EN410

```


DRAGON CONTINUED

```

410 NEXTD
411 IFEN=0THEN420
412 IFHN>0 OR N(7)>0THENHC=7
420 IFHC=C THEN430
421 IFB=5 THENM(C)=M(C)-1:M(HC)=M(HC)+1
422 C=HC:MID$(C$(X),Y,1)=MID$(STR$(C),2):GOSUB120:PLAY"T200ACDEF
"
423 IFB=5THEN430
424 X=X+X(B):Y=Y+Y(B):IFX=0ORX=17ORY=0ORY=11THEN430
425 B=FNSS(0):IFB=6THEN430
426 C=FNCC(0):GOTO402
430 X=OX:Y=OY:C=OC:B=OB:RETURN
500 B=7
503 C=4:GOSUB120:C=2:GOSUB120
510 I$=INKEY$:IFI$="" OR INSTR(AR$+"RMFES",I$)=0THEN503

```



```

512 IFINSTR(AR$,I$) THENI$=CHR$(FNAR(0)+52)
515 IF(I$="5" AND X=1)OR(I$="B" AND X=16)OR(I$="7" AND Y=1)OR(I$
="6" AND Y=10)THEN503
520 IF(INSTR("5678",I$)=0)AND MID$(C$(X),Y,1)<>MID$(STR$(P),2) A
ND I$<>"E" THEN503
521 IFI$="R" AND MID$(S$(X),Y,1)>"4" THEN503
525 GOSUB120
526 IF INSTR("E",I$)THENRETURN
530 IF INSTR("5678",I$)=0THENE=FNSS(0):C=P:GOSUB120:RETURN
540 I=VAL(I$)-4:X=X+X(I):Y=Y+Y(I):GOTO500
600 DIMP$(6):CLS
605 PRINT"          INTERSTELLAR INTRIGUE"
606 PRINT"          "+STRING$(21,"-")
610 PRINT" DESIGNED BY MIKE SINGLETON FOR
615 PRINT"          COMPUTER & VIDEO GAMES"
617 PRINT"          (CONVERSION BY RON POTKIN)"
620 PRINT@192," THIS GAME CAN BE PLAYED BY AS FEW AS TWO PLAYE
RS OR AS MANY AS FIVE.PLEASE ENTER HOW MANY PEOPLE ARE G
DING TO PLAY."
625 INPUT" NUMBER OF PLAYERS =" :NP:IFNP<>INT(NP)ORNP<2ORNP>5.TH
EN625
630 PRINT@192," YOU HAVE A":NP:"-PLAYER GAME.", " ENTER EACH
PLAYER'S NAME."+STRING$(4,13)
635 PRINT@256,"";
638 FORP=1TO NP
640 PRINT"PLAYER'S NAME(" :MID$(STR$(P),2):")= ";
645 INPUT"" :N$:IFN$="" THEN640ELSEIFLEN(N$)>9THEN:N$=LEFT$(N$,9)
650 C=RND(5)+1:IFLEFT$(P$(C),1)>CHR$(31)THEN650
655 M(C)=1:P$(C)=N$

```



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DRAGON CONTINUED

```

407 IFN(AC)=HN THENEN=1:GOTO410
408 HN=N(AC):HC=AC:EN=0
660 NEXTP
665 PRINT"THANKYOU,"+CHR$(13)+" PLEASE WAIT A MOMENT...";
690 RETURN
697 CL=FNCL(0):GOSUB60005;COLOR2:AY=174:AX=INT(16-LEN(M$)):LINE(
  8*(AX-1),169)-(8*(AX+2*LEN(M$)+1),186),PSET,BF:GOTO61030
699 CL=85:M$="MOVES"+STR$(M)
700 GOSUB60005
702 GOTO61000
2000 POKE65494,0:PRINT"SAVE PROGRAM":INPUT"PRESS ENTER";B$
2010 FORI=49T052:PRINTI-48:CSAVE"STELLAR":FORJ=1T02000:NEXTJ,I:S
  TOP
5200 AL$="BD6DUR2U2D5R2D2U9R2U2D9ND4R6UL4UR4UL4UR4UL6"
5202 AF$="BD6DUDR2U3R2U2D12R2U14D2R2D5ND7R4UL2U2L2"
5204 AU$="ND3L2NU2ND10L2ND3"
5206 AG$="L2D2NL2DNL2D2R2U2R6UL6U"
5208 RV$="BM+12,+14;A2"
5209 'BLUE
5210 B$(1,2)="C3"+AL$
5212 B$(3,2)="C3"+AF$
5219 'GREEN
5220 B$(1,7)="C1"+AL$:B$(3,7)="C1"+AF$
5225 'RED
5226 B$(1,3)="C4"+AL$:B$(3,3)="C4"+AF$

```

```

5227 'BLUE/YEL
5228 B$(1,4)=B$(1,2)+"C2"+AG$:B$(3,4)=B$(3,2)+"C2"+AU$
5230 'RED/YEL
5231 B$(1,5)=B$(1,3)+"C2"+AG$:B$(3,5)=B$(3,3)+"C2"+AU$
5234 'BLUE/GREEN
5235 B$(1,6)=B$(1,2)+"C1"+AG$:B$(3,6)=B$(3,2)+"C1"+AU$
5239 'CURSOR
5240 CR$="DUR2BR6R4D2BD10D2L4BL8L2U2BU10U2"
5241 B$(7,2)="C2"+CR$:B$(7,4)="C4"+CR$
5249 'STAR
5250 ST$="BD6DUR2U2R2U2R2NU2R2DL2DR4DL6DR8DL10DR8DL6NL2D2R2ND2R2
  UL2U2"
5251 SC$="NU3R2NU3L4NU3"
5252 B$(5,2)="C3"+ST$:B$(5,3)="C4"+ST$
5253 B$(5,4)=B$(5,2)+"C2"+SC$:B$(5,5)=B$(5,3)+"C2"+SC$
5254 B$(5,6)=B$(5,2)+"C1"+SC$:B$(5,7)="C1"+ST$
5255 X$="R2D15R2U15"
5259 'SPACE
5260 B$(6,1)="C2D15R2U15"+X$+X$+X$
5279 'REVERSE
5280 FORC=2T07:B$(2,C)=RV$+B$(3,C)+"A0"
5282 B$(4,C)=RV$+B$(1,C)+"A0"
5284 NEXTC:RETURN
5297 '-----
5298 'STARTUP DATA
5299 DATA START
5300 DATA 8,1
5310 DATA1,4
5320 DATA16,4
5330 DATA4,10
5340 DATA13,10
60005 POKEGR+1,CL:DEFUSR0=GR:USR0(0):POKEGR+1,85:RETURN

```


BEACON STAR WARS

All over the galaxy contests like this are being fought, each unique in its own way and yet each similar in so many aspects.

Who was to guess that the enmity between the forces of Bluuton and the crimson ships of Redare would last thus long and be so intense? But greed is a strange thing and both of these ambitious space tribes knows the full worth of the riches which are being uncovered before their very eyes.

Both know that they must keep the secret from the mighty empires, which would rush in and swallow the prize and wipe out the squabbling tribes like so much space dust.

And both tribes know that if they can harness this wealth of energy for themselves then their tribe might one day rank as high as those great empires and control just as large a slice of the galaxy ... but first ... they just have to defeat their rivals.

The Beacon Stars, rich in stellar energy, had lain there for eons but their light had been stifled by the darkness and their power remained undiscovered in the blackness of the "Dead Areas" into which no spacecraft dared travel.

Then came the Scavengers, a strange space phenomena, no-one ever saw them none knew where they would strike next and few could but wonder at the results they produced.

Two alien races clash in deepest space

by Ron Potkin

The first sign was a strange green glow in the night sky where a "Dead Area" had been before and then the blackness was gone forever and sometimes a bright Beacon Star shone out from where the darkness had been.

The Beacon Star Wars are fought out between the fleets of Redare and Bluuton as they rush to capture the stars and use them to produce the stellar-energy creating Stargates.

Their fleets are made up of Miner ships fast and useful for exploration and Gun ships, slow but mighty in battle.

And each has a base stargate, immovable but strong in defence and able to produce new ships to add to the fleets.

Other stargates can be built on the sites of captured Beacon Stars by having a Miner ship and a Gun ship adjacent to the Beacon Star and cannibalising these to create a star gate.

Every star gate produces three E.R.U.s every turn and these are the mark of who is winning the game. These are also the basis of new ships, from the cheap to produce Miners, to the expensive Gun Ships.

OPERATING INSTRUCTIONS

1. Rewind the tape fully and press the PLAY button on the recorder. Type CLOAD and press ENTER.
2. Once the program has been loaded — it takes about 60 seconds — type RUN and press ENTER.
3. There will be a slight pause. The logo and title will then appear on the screen. This indicates that the board is being prepared.
4. The board appears with the Bluutons on the left side of the screen and the Redarians on the right. The Dead Areas appear in the central part of the screen.
5. The bottom part of the screen is devoted to messages and information. Currently, this will be flashing the message:

BLUUTON
PRESS ENTER

The Bluutons always move first.

THE RULES OF PLAY

1. Objective.

To earn the most number of energy resource units (ERU's) before the last Dead Area is cleared.

2. Sequence of play.

- a) The Blue player moves his pieces. The commands available are:
Move — use the numbers 1 to 6
Jump — press "J"
Capture — occupy a Beacon Star
Produce — press "P"
Complete — press "C". Checks for remaining attacks.
Finish — press "F". Does not check for attacks.
- b) Combat takes place. The computer will determine result of all attacks.
- c) One Dead area is removed from the board. The area to be cleared is determined and painted blue.
- d) Scavenger explosions are determined and painted green.
- e) The Red player now plays and steps (a) to (d) repeated.
- f) The game finishes after 30 turns when the Dead Areas are cleared. The winner is the player earning the most ERU's. Note that ships in play have no value.

3. The Pieces.

Each player commences with five pieces. These may during the course of play be increased up to a maximum of sixteen.

The capabilities of each piece are:

Start Moves Attack Defence Jumps Cost Prod

	Start	Moves	Attacks	Defence	Jumps	Cost	Prod
Stargate	1	0	2	2	0	0	3
Battleship	2	3	4	5	2	5	0
Miner	2	5	1	3	3	3	0

4. Other Pieces.

Other pieces on the board are:

a) Clear Hex — Yellow hex. Pieces may normally only enter these hex.

b) Dead Areas — these are red hex. There are 30 when the game commences. One is cleared before each player starts his turn. The game finishes when the last hex is cleared, the current player has finished his moves and all attacks are complete. No piece may enter a Dead Area.

c) Beacon Stars — These are green stars. There are 10 hidden underneath the Dead Areas. They cannot be occupied until the Dead Area is removed.

d) Scavengers at Work! — this is a blue hex. It indicates where the next Dead Area will be cleared.

e) Scavenger Explosion — this is a green hex. It indicates that a scavenger has moved too close to a star. The star may be in a clear space or lying beneath a Dead Area.

f) The red half hex around the edge of the board are merely decorative and do not form part of the playing area.

5. Starting play.

Each player must press ENTER to start his turn. He will be prompted for his move by a piece flashing. The message area shows the status of this piece i.e.

Name of the side currently moving Name of
current piece Balance of ERU's
Index number XXX
Moves XX
Attack Factors XX
Defence Factors XX

6. Moving.

The number of moves available appear in the top-right corner of the message area. To move one hex, press a number from 1 to 6. Visualise a six-hour clock (see below). If you wish to STOP moving before all moves are expended, press "S". A piece must stop when it moves next to an opponent.

7. Production.

At the player's option, new pieces may be produced and brought immediately into play. There are three restrictions:

a) New ships must be docked at the Base Stargate (The one at the edge of the board).

b) Each Stargate has a maximum of four docks. Occupied docks or docks adjacent to an opponent may not be used. The number of pieces for one side must not exceed sixteen.

To produce ships type "P" and when the number of free docks appear type "M" for a minership or "G" for a gunship. Provided sufficient ERU's are available, the ships will be placed in a dock. Press "A" when complete.

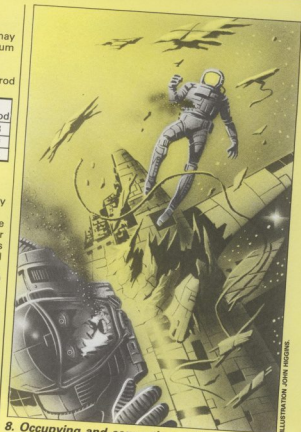


ILLUSTRATION JOHN HUGGINS

8. Occupying and converting a Star.

Occupying a Beacon Star requires both a miner and a gunship. If a gunship is in orbit around a star then a miner may be moved into and occupy the star hex. The miner and the star combine to form a Stargate.

Occupation may not take place if an opponent is in orbit around the star.

New Stargates will commence producing three ERU's per turn starting with the player's next turn.

9. Jumps

If a ship is in orbit around a friendly Stargate it may jump through hyper-space to another Stargate provided the destination is not under attack. Press "J" to jump the current piece. Each Stargate will flicker in turn. Press "Y" if you wish to jump to that Stargate. Press "N" if you do not. Press ENTER or "A" to abort the jump command.

If the distance between the two hex exceeds the maximum allowed, there is possibility that the jump may fail. Each hex over the maximum reduces the chance of success by ten percent. This is indicated on the screen.

10. "C" and "F".

If a player decides that his turn is complete and no further pieces need be moved, he may press "C". The computer will check all remaining pieces and look for any that are still adjacent to opponents from a previous turn.

This however is rather slow and if it can be seen that there are no potential attacks, press "F" instead. This brings the player's turn to an immediate end.

COMBAT

Once a player has completed his moves, combat will occur. If a piece is attacking a single opponent, combat is automatic, but if two or more pieces are being attacked the player will be asked to indicate the direction of attack. Enter a number from 1 to 6.

Calculation of Odds.

The combat odds are based on the ratio of the attack points of both the attacker and the defender. Any pieces adjacent to the attacker but not under attack may give assistance. Their attack points are added to those of the defender. If the defender is a stargate, the attack points of any piece in orbit will be added to the defender's points. Assistance may only be given to one defender.

The Outcome.

To determine the outcome of an attack, take the higher number, divide it by the other and round it down. The resulting number will indicate the column to be used in the table below. If the defender's points are higher, use the left side. If the attacker's are higher, use the right side.

The computer now selects a number from 1 to 10 and selects the appropriate row to obtain the result. Odds greater than six mean automatic elimination. If as the result, the defence factors fall to zero or below, a piece is eliminated.

Examples:

(1) The attacker's points total 10 points; the defender has 4 points. 10 divided by 4 gives 2.5 which is rounded down to 2. The odds therefore are 2-1 in favour of the attacker.

Assuming a dice roll of 8, the outcome is 4 — the attacker loses two points.

(2) The attacker's points totals 3; the defender's total 10. This gives odds of 3-1 in favour of the defender. A dice roll of 3 is an outcome of 5 — both lose two points.



Illustration: John Higgins

Runs a Dragon in 32K

```

10 PCLEAR0: CLEAR900, &H7B00: CLS: GOSUB1790: GOTO1000
20 POKE65494, 1: RETURN
29 'Clear message area
30 DEFUSR0=GR: US=USR0(0): RETURN
39 'Boxed message
40 POKECR+1, 170+85*PL: GOSUB30: POKECR+1, 85: COLOR 2: GOSUB510: GOTO430
49 'Prompting
50 G=20: A$=INKEY$: IF A$="" THEN A=VAL(A$): IF A<7 THEN RETURN
60 GOSUB150: GOTO50
69 'Get Board/video parameters for piece using index QQ
70 BX=FNMN(XX): BY=FNMN(YY): RETURN
80 FL$=PC$(3*PL+FNMN(TT))
90 GOSUB70
100 PX=10+16*BX: PY=9*BY+9
110 Y4="BM=PX: ,=PY: ": RETURN
120 POKEFNPC(XX), BX: POKEFNPC(YY), BY: RETURN
129 'Save attack data
130 POKEFNPC(FG), FNMN(FG)+1: POKEFNPC(ID), AJ: RETURN
139 'Timer
140 FORC1=1 TO C: NEXT: RETURN
150 GOSUB140: GOSUB190: GOSUB140: GOTO170
160 COLOR CR: FORJ=2 TO 0 STEP-1: LINE(PX-2+J, PY-6+J)-(PX+10-2*J, PY+5-J), PSET, BF: IN
NEXTJ: RETURN
170 GOSUB80: DRAWY4+"C"+STR$(3*PL)+FL$: RETURN
180 DRAWY4+"C1"+B$4: RETURN
190 DRAWY4+"C2"+FL$: RETURN
200 '
209 'Draw hex outline around combat area - uses CR, GG, HH, HX
210 FORI=0 TO HH: GOSUB230: NEXTI: IF CR<2 THEN CR=3*PL
220 IF GG=HH THEN RETURN: ELSE FORI=HH+1 TO GG: GOSUB230: NEXTI: RETURN
230 QQ=FNB(I): IF QQ=0 THEN RETURN: ELSE GOSUB70: GOTO290
237 'Examine hex in direction $
238 'Needs A
239 'NA=-1 None, NA=0 Friend, NA=1 Opponent AJ=Contents of hex

```



```

250 NA=-1:IFA=0THENAJ=-1:RETURNELSEUX=FNXY(0):UY=FNXY(1):IFFNAX(BX*UX)OR FRYEUDY
+UY)THENAJ=-1:RETURNELSEAJ=FND0(1)
260 IF(AJ>2XNR)OR(AJ=0)THENRETURNSENA=1+((AJ<NR)-(QQ<NR)):RETURN
270 A=INKEY$:IFA$=""THEN270ELSERETURN
279 'Paint hex
286 GOSUB100:DRAWY$+"C"+STR$(CR)+DA$+PAINT(PX,PY),CR,CR:RETURN
290 GOSUB100:DRAWY$+"C"+STR$(CR)+DA$+RETURN
299 'String of random numbers
300 B=0:FORI=0TO DR-1
310 B=B+1:GOSUB390:IF(BX<3)OR(BX>11)THEN310ELSEPOKEI+RD,0:NEXTI
320 FORI=DR TO I STEP-1:R=RND(I)-1:A=PEEK(R+RD):POKEI+RD,PEEK(I-1+RD):POKEI-1+RD
A:NEXTI:RETURN
329 'Data Search
330 RESTORE
340 READA:IFA$<>NA$ THEN340ELSERETURN
350 GOSUB380:GOSUB280
360 IFCR>2 THENRETURNELSECR=1
370 J=FNBQ(0)-50:IFJ<0THENRETURNELSEPOKEFNBP(0),J:IFJ=99THENGOSUB100:GOTO100ELSE
RETURN
379 'Calculate BX,BY from random number table
380 B=PEEK(I+DP)
390 BY=2*INT(0/15)+INT((0-15*INT(0/15))/8):DX=2*BQ-15*BY:RETURN
395 'Alpha graphics routines
400 AY=174:J=0:K=INSTR(1,M$,"@"):IFJ<0THENJ=1:AY=168:K=INSTR(K+1,M$,"@"):IFK>0TH
ENJ=2:AY=169
410 I=INSTR(M$, "@"):IFI<0THENX$=MID$(M$,I+1):M$=LEFT$(M$,I-1):GOSUB490:M$=X$:AY
=AY+10-9*(J-1):GOTO410ELSE490
420 J=INSTR(M$, "@"):IFI<0THENX$=MID$(M$,J+1):M$=LEFT$(M$,J-1):GOSUB490:M$=X$:AY
=AY+10:GOTO420
430 IF(LEN(M$)<1)OR((AX+LEN(M$)>31)OR(AY>184)OR(AY<163)THENPRINT"ERROR":STOP
435 M$=A$+CHR$(AX)+CHR$(AY)+M$:DEFUSR$=ML:USR$=USR$(VARPTR(M$)):RETURN
440 AX=INT(16-LEN(M$)):GOTO430
450 GOSUB390:M$=M$+CHR$(ER):GOTO490
460 T=PEEK(NT(163))-7:THENRETURNELSEGOSUB390:AX=1:AY=169:M$=M$+(FL)+"@":TY$(FNMN(T
+1)+ERUS):GOSUB420:COLOR 4:LINE(176,162)-(170,191),PSET:PSET(0,163,4)
470 AY=22:AY=169:INT=HEX(15):GOSUB420
480 AX=16:AY=174:M$=MID$(STR$(FNMN(NH)),2):GOSUB430:M$=MID$(STR$(CD(FL)),2):AX=1
490 AY=184:GOSUB430:AX=26:AY=174:M$=STR$(FNMN(AA))+"@":STR$(FNMN(DD)):GOTO420
500 GOSUB450:IF=2000:GOSUB140:GOTO30
510 AX=26:AY=164:M$="" :GOSUB430:M$=STR$(NV):GOTO430
515 AY=174:AX=INT(16-LEN(M$)):LINE(8*(AX-1),169)-(8*(AX+2*LEN(M$)+1),186),PSET,B
RETURN
518 'Remove piece from table
520 SP=PL:FORPL=0TO1
525 T=FNST(0)<1+NR*PL THEN550
530 FORQD=1+NR*PL TO FNST(0):IFFNMN(QD)=99 THENGOSUB560:QQ=99:NEXTQQ:GOTO530ELSE
NEXTQD
550 NEXT PL:IFPL=SP:RETURN
560 I=00:IFQD=FNST(0)THENGOSUB70:POKEFNBP(0),0ELSEFORQD=QQ+1 TO FNST(0):GOSUB70:
POKEFNBP(QD),0D-1:FORJ=0TOSZ-1:POKEFNPC(J)-SZ,FNMN(J):NEXTJ,QQ
570 POKE+PL,FNST(0)-1:QD=1:RETURN
575 'Set-up piece parameters in table - needs QQ
580 FORI=0TO SZ-1:POKEFNPC(I),0:NEXTI:GOSUB120
590 POKEFNPC(IT),T:FORI=1TO4:POKEFNPC(I+2),SH(T,I):NEXTI
600 POKEFNPC(NH),NO(PL):NO(PL)=NO(PL)+1:POKEFNBP(0),QQ:POKE+PL,FNST(0)+1:GOTO17
0
610 'Hyper jump
610 A$=INKEY$:QD=00:SX=BX:SY=BY:ER=0:1A=1:JJ=FNMN(JP)
620 GOSUB250:IF(HA=0)AND(FNMN(TT)=3)THEN630ELSEA=A+1:IFA<7THEN620ELSEER=13:GOTO7
0
630 SJ=A:AJ=FORQD=0 TO FNST(0):IF(SJ<QQ)AND(FNMN(TT)=3)THENTX=FNMN(QD):TY=FNMN(QD)
:GOSUB80ELSE720
640 F3=0:IFCR=1TO4:GOSUB250:IFNA=1 THENA=7:NEXTA:GOTO720ELSEIFAJ=0THENF3=A:NEXTA
ELSENEXTA
650 IFC3=0THEN720ELSEA=F3:UX=FNXY(0):UY=FNXY(1):GOSUB1020:R=100+(JJ-MH)*10
660 IFCR=0THENR=0ELSEIFR=100THENR=100
670 GOSUB30:M$=HEX(2)+"@":STR$(R)+" PCT"+ " "+M$(22):GOSUB400
680 GOSUB50:M$=M$+(2)+"@":STR$(R)+" PCT"+ " "+M$(22):GOSUB400
690 IF(RND(100)THENX=0:GOSUB30:M$=HEX(23):GOSUB400:QQ=SQ:GOTO170
700 TX=EX:TY=BY:BX=GX:BY=SY:CR=2:GOSUB280:POKEFNBP(0),0:BX=TX:BY=TY
710 QD=50:BX=BY+UX:BY=BY+UY:POKEFNBP(0),QQ:GOSUB120:GOTO170

```

```

720 NEXTQQ:ER=10
720 GOSUB490
735 ER=1
740 QQ=90:GOTO80
749 'Occupation of star
750 A$=INKEY$:SX=BX:SY=BY:ER=4:BX=BX+UX:BY=BY+UY:TX=BX:TY=BY:A=1:F2=0
760 GOSUB250:IF (NA=0)AND (FNNX(TT)=2) THEN F2=1 ELSEIF (NA=1)AND (FNNX(TT) < 3) THEN ER=
12:GOTO800
770 A=A+1:IF A<7 THEN 760 ELSEIF F2=0 THEN ER=5:GOTO800
780 BX=BX:SY=SY:CR=2:GOSUB280:POKEFNBP(0),0
790 BX=TX:BY=TY:GOSUB280:TP=3:GOSUB580:POKEW+PL,FNST(0)-1:GOTO490
800 GOSUB490:BX=BX:BY=BY:RETURN
809 'Production
810 A$=INKEY$:SQ=QQ:GOSUB1000:IF ER THEN 980
820 ER=0:QQ=S:IFFNMN(TT) < 3 THEN ER=8:GOTO980
830 F1=0:FOR I=1 TO 6:QQ=S:GOSUB70:A=1:GOSUB250:IF AJ THEN 870
840 BX=BX+UX:BY=BY+UY
850 F2=0:FOR A=1 TO 6:GOSUB250:IF NA=1 THEN A=7:F2=0 ELSE F2=1
860 NEXTA:IFF2 THEN F1=F1+1:OK(F1)=I
870 NEXTI
880 IFF1=0 THEN ER=9:GOTO980
890 GOSUB30:AY=164:AX=1:M$=ME$(14)+STR$(F1)+"" "+STR$(CD(PL)):GOSUB420
900 QQ=S:GOSUB70
910 GOSUB920:J=INSTR("MCA",A$):ON J+1 GOTO910,930,940,990
920 C=100:A$=INKEY$:IFA$="" THEN RETURN ELSE AX=25:AY=174:M$="MCA":GOSUB430:GOSUB140
:M$="" ":GOSUB430:GOSUB140:GOTO920
930 CS=3:TP=1:GOTO950
940 CS=5:TP=2
950 IFC>CD(PL) THEN 910 ELSE CD(PL)=CD(PL)-CS:A=DK(F1):BX=BX+FNXY(0):BY=BY+FNXY(1):
F1=F1-1
960 QQ=FNST(0)+1:GOSUB580
970 GOSUB1000:IF ER=0 THEN 880
980 GOSUB490
990 QQ=90:GOTO80
1000 ER=0:IF CD(PL) < 3 THEN ER=6 ELSE IFFNST(0)=NR+NR*PL THEN ER=7
1010 RETURN
1019 'Distance between two hex
1020 DX=ABS(SX-TX):DY=ABS(SY-TY):I=ABS(DX/2+DY/2):J=ABS(DX/2-DY/2):K=DX+I:L=DX+J
:MN=I+J
1030 IF MN>K THEN MN=K
1040 IF MN>L THEN MN=L
1050 RETURN
1059 'Determine player - Game is controlled by this line
1060 PL=1-PL:I=1+NR*PL:GOSUB1140:GOSUB520:GOSUB1070:GOTO1060
1069 'Fix Dead Areas
1070 IF DR<0 THEN 2300 ELSE SEC=2:I=DR:GOSUB350:DR=DR-1:IF DR>=0 THEN I=DR:CR=3:GOSUB350
1079 'Fix Green Explosions
1080 IF SS<0 DA THEN FOR J=0 TO 1:DE(J)=DE(J):IFI=200 THEN NEXT J:ELSE GOSUB380:POKEFNBP(0),8:
CR=2:GOSUB280:NEXT J
1090 FOR J=0 TO 1:DE(J)=200
1100 SS=SS+1:IF SS=76 THEN SS=0A
1110 I=SS:GOSUB380:IFFNBQ(0) < 0 THEN 1100 ELSE FOR A=1 TO 6:GOSUB250:IF (AJ=49) OR (AJ=99)
THEN A=7:NEXTA:ELSE NEXTA:GOTO1130

```



ATTACK TABLE

Attacker

	Defender									
	1	2	3	4	5	6	7	8	9	10
D	1	3	4	6	7	9	0	0	0	0
i	2	2	3	5	6	8	9	0	0	0
c	3	2	3	4	5	7	8	9	0	0
e	4	2	2	3	5	6	7	8	9	0
	5	2	2	3	4	5	6	7	8	9
R	6	1	2	3	4	5	6	7	8	9
o	7	1	2	3	4	5	6	7	8	9
l	8	1	1	2	3	4	5	6	7	8
i	9	1	1	2	3	4	5	6	7	8
l	10	1	1	1	2	3	4	5	6	7

Interpretation of Results:

- 1 Number Outcome
- 2 Attacker Eliminated
- 3 Attacker loses half Defence Points
- 4 Attacker loses three Defence Points
- 5 Attacker loses two Defence Points
- 6 Both lose two Defence Points
- 7 No damage
- 8 Defender loses two Defence Points
- 9 Defender loses three Defence Points
- 0 Defender loses half Defence Points
- Defender Eliminated

Note that if a piece is eliminated that hex, unless it is adjacent to a stargate, becomes a Dead Area which will not be cleared before the end of the game. A stargate however is not removed; instead it is captured and changes sides.



Illustration: John Higgins

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1120 DE(J)=SS:POKEFNBP(0),53:GOSUB100:CR=1:GOSUB280
1130 NEXTJ:RETURN
1139 'Player PL'S turn
1140 IF FNST(0)<S THEN RETURN ELSE FOR QQ=S TO FNST(0):CO(PL)=CO(PL)-3*(FNMN(TT)=3):P
OKEFNPC(ID),0:POKEFNPC(FC),0:POKEFNPC(AID),0:NEXTQQ
1150 G=100:M$=ME$(PL)+ME$(3):GOSUB140:GOSUB30:GOSUB400:IF INKEY$="" THEN GOSUB140:G
OTO1150
1160 A$="" : QQ=S : ZZ=0
1170 GOSUB30:MFV=FNMN(MM):IF MFV=0 THEN 1310
1180 GOSUB460
1190 GOSUB80:IFA$="C" THEN 1280
1200 GOSUB500:MF=1
1210 GOSUB50:IFA THEN 1240 ELSE J=INSTR("CSFJP",A$):ON J+1 GOTO1210,1280,1280,1320,
1220,1220
1220 M$=ME$(16):GOSUB40:GOSUB810:GOTO1180
1230 M$=ME$(17):GOSUB40:GOSUB610:A$=INKEY$:IFER THEN 1180 ELSE 1280
1240 GOSUB250
1250 IF (A$=49) AND (FNMN(TT)=1) THEN M$=ME$(17):GOSUB40:GOSUB750:A$=INKEY$:IFER=4 THE
N 1310 ELSE 1210
1260 IFAJ<0 THEN SOUND10,S:GOTO1210
1270 POKEFNBP(0),0:POKEFNBP(1),0:GOSUB190:BX=BX+UX:BY=BY+UY:GOSUB120:GOSUB170
1280 FORA=1 TO 6:GOSUB250:IFNA=1 THEN GOSUB130:MF=100:M$=ME$(18)+STR$(FNMX(NN)):GOS
UB40:NEXT ELSE NEXT
1290 IF MF=100 THEN PLAY"1200:O2ABCD EFG":GOSUB30:ZZ=1
1300 IF INSTR("CS",A$) THEN 1310 ELSE MFV=MF-IF MFV=0 THEN 1180
1310 PLAY"1100:O2GFEDCBA":QQ=QQ+1:IFQQ<=FNST(0) THEN 1170
1320 M$=ME$(20):IFZZ THEN GOSUB40 ELSE M$=ME$(21)+M$:GOTO40
1327 'First - find attackers - if they are attacking more than one request decis
ion
1330 A$=INKEY$:HX=0:FORQQ=S TO S+NR:IF FNMN(FC)=0 THEN 1360
1340 IF FNMN(FC)=1 THEN NAJ=FNMN(ID):POKEFNBJ(AID),1:GOTO1360 ELSE GOSUB80:GOSUB30:ER=
1:GOSUB450
1350 GOSUB80:GOSUB250:IFNA=1 THEN M$=ME$(20):GOSUB40:GOSUB130:POKEFNBJ(AI),1 ELSE 1
360
1360 NEXTQQ
1367 'Second - set-up QB for each combat sequence
1368 'Test if FC set. If so, save in ID in QB. Now test rest and check if any at
tacking same piece. Save in QB. Defender in QB(0)

```

DRAGON CONTINUED

1369 'Calculate attack factors as we go

1370 IFHX THENCR=2:GOSUB210

1380 AP=0:Q0=5:HH=0

1390 IFFNNH(FG)=0 THENQ0=Q0+1:IFQ0>FNST(0) THENRETURN ELSE1390

1400 AJ=FNNH(ID):POKEFNOA(0),AJ:POKEFNAJ(AID),1:GOSUB1430

1410 Q0=Q0+1:IFQ0>FNST(0) THEN1440 ELSEIFFNNH(ID)=AJ THENGOSUB1430

1420 GOTO1410

1430 POKEFNPC(FG),0:HH=HH+1:POKEFNOA(HH),Q0:AP=AP+FNNH(AA):RETURN

1439 'Now calculate defender factors plus assistance

1440 AJ=FNOB(0):DP=FNNX(AA):GOSUB1740:DP=DP+K

1449 'Get column and random row

1450 A=AP/DP:B=INT(A):IFA>6 THENRT=10 ELSEIF6<A<1 THENRT=1 ELSERT=FNRT(RND(10))

1460 IFRT=0 THENRT=10

1470 CR=1:GOSUB210:HX=1

1480 GOSUB30:M4=RT*(RT):GOSUB400

1490 GOSUB270

1499 'Outcomes

1500 ON RT GOSUB1520,1530,1560,1570,1600,1620,1630,1640,1670,1700

1510 GOTO1370

1520 K=99:GOTO1580

1530 FORI=1 TO HH:Q0=FNOB(I):J=FNNH(CD):K=INT(.5+J/2):

1540 IF(J-K)<1 THENGOSUB1710 ELSEPOKEFNPC(CD),J-K

1550 NEXTI:RETURN

1560 K=3:GOTO1580

1570 K=2

1580 FORI=1 TO HH:Q0=FNOB(I):J=FNNH(CD):IF(J-K)<1 THENGOSUB1710 ELSEPOKEFNPC(CD),J-K

1590 NEXTI:RETURN

1600 GOSUB1570

1610 GOTO1630

1620 RETURN

1630 K=2:GOTO1650

1640 K=3

1650 I=0:Q0=FNOB(0):J=FNNH(CD):IF(J-K)<1 THENGOSUB1710 ELSEPOKEFNPC(CD),J-K

1660 RETURN

1670 I=0:Q0=FNOB(0):J=FNNH(CD):K=INT(.5+J/2):

1680 IF(J-K)<1 THENGOSUB1710 ELSEPOKEFNPC(CD),J-K

1690 RETURN

1700 K=99:GOTO1650

1709 'Eliminate piece unless it's a stargate which changes sides

1710 IFFNNH(TT)=3 THENIF FNST(0)<(HR+HRS*PL) THEN1730 ELSEER=25:GOSUB190

1715 POKEFNDA(I),0:GOSUB80:FORA=1 TO4:GOSUB250:IFFNNH(TT)=3 THENF2=6:A=7:NEXTA ELSE

FNEXTA:F2=50

1720 PLAY" T200:Q2ACEG:Q1BCDE:Q3ABCEFG":POKEFNBP(0),F2:POKEFNPC(XX),F2:CR=4:GOSUB

B160:CR=2:GOSUB160:CR=2:GOSUB280:IFF2 THENCR=3:GOTO260 ELSERETURN

1730 ER=27:GOSUB450:GOSUB80:POKEFNPC(XX),99:TP=3:Q0=FNST(0)+1:POKEFNOA(I),Q0:GOT

0580

1739 'Assistance

1740 F2=1:GG=HH:K=0:FORJ=1 TO HH:Q0=FNOB(J):GOSUB1760:NEXTJ

1750 F2=0:Q0=FNOB(0):IFFNNH(TT)>3 THENRETURN

1760 GOSUB70:FORA=1 TO4:GOSUB250:IF (HA=F2) AND (FNNH(AID)=0) THENK=K+FNNH(AA):POKEFN

AJ(AID),1:GG=GG+1:POKEFNOA(GG),AJ

1770 NEXTA

1780 RETURN

1789 'Initialise

1790 POKE65495,0:HL=8H7B00:GR=8H7BC0:M=8H7C00:ED=8H7E00:RD=8H7F00:DA=80:DR=75:IS

=RD+DR+1

1800 S=1:SZ=12:NR=16:XX=0:YY=1:TT=2:HH=3:AA=4:DD=5:FG=10:ID=7:IAID=3:NR=9:JF=6

1810 DIMK(6),RE(20),TY(5),SH(3,4),CD(1),DE(1),RD(1)

1819 'Logo

1820 GOSUB3020:SCREEN1,0

1829 'Clear ED,M and RD

1830 FORI=M TO 00:POKEI,0:NEXTI

1839 'DEF FN'S

1840 DEFFNDA(A)=(BX+BY)AND1

1850 DEFFNDB(A)=0B+0

1860 DEFFNDC(A)=PEEK(FNOA(0))

1870 DEFFNDE(A)=ED+16*(UY+0XUY)+BX+0XUY

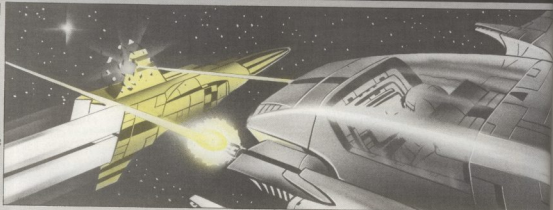
1880 DEFFNDF(A)=PEEK(FNBP(0))

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1090 DEFFNPC(0)=W+SZ*00+0
1900 DEFFNMH(0)=PEEK(FNPC(0))
1910 DEF FNXY(0)=VAL(HID$( "... 1-1 1 1 0 2-1 1-1-1 0-2",A*4+2*0,2))
1920 DEF FNEDGE(0)=0<0 OR 0>19
1930 DEF FNYEDGE(0)=0<0 OR 0>16
1940 DEF FNST(0)=PEEK(W+PL)
1950 DEF FNAJ(0)=W+SZ*AJ+0
1960 DEF FNHX(0)=PEEK(FNAJ(0))
1970 DEFFNRT(0)=VAL(HID$(HID$(00$,12*0,12),5+B+(B=0)*(INT(1/A)-2),1))
1970 'The Pieces
1980 RS$="UID1R201R2D4;BU9R2U1R2U1L2U1L2;U4B04L2D1L2"
1990 PC$(2)="DUNUZR10UL6ML2;UR2NR2UR2NR2UL6DL2R4;DSNL2NR2D2NR4NL6DL4R2"
2000 PC$(3)="BU9R2UR2NR2DNL2R2D3L2D2R2ND2L4NU3ND2L4ND2R2U2"
2010 PC$(1)="M103R10DL2D2L2NDL2UR2UL4U2R2NR6U2R2NUNDR2D"
2020 PC$(4)=PC$(3)+PC$(5)="BM+10,-1;A2"+PC$(2)+"A0"
2030 PC$(4)=PC$(3)+PC$(5)="BM+10,-1;A2"+PC$(2)+"A0"
2040 DAT$="BU9R10D3R2D3R2D5L2D3L2D3L10U3L2U3L2U5R2U3R2U2"
2040 'Put pieces in logo
2050 DRAW"C1;BM72,86;"BS$
2060 FORI=1TO1 STEP2:A1$="C"+STR$(3-(I<0))+ "BH"
2070 DRAWA1$+STR$(58-I*L-L*(I<0))+", "+STR$(86+I*INT(L3/2))+"; "+PC$(3-3*(I<0))
2080 DRAWA1$+STR$(58-I*L-L*(I<0))+", "+STR$(86-I*INT(L3/2))+"; "+PC$(2-3*(I<0))
2090 DRAWA1$+STR$(72)+", "+STR$(86+I*INT(L3))+"; "+PC$(1-3*(I<0))
2100 NEXTI
2110 COSUB2510:AX=19:FORI=1TO7:M$=HID$("....THE BEACON STAR WAR BY RO
2120 COSUB300:FORI=1TO4:PCOPYI TO I+4:NEXTI:M$=COMPUTER ANDPROVIDED GAMES":COSUB400
2130 PCL$2:COLOR4:LINE(0,162)-(255,162),PSET
2139 'Board Outline
2140 FORI=0TO144 STEP18:DRAW"C4;BM8,"+STR$(I)+";D3L2D3L2D6R2D3R2D3":DRAW"BM246,"
+STR$(I)+";D3R2D3R2D6L2D3L2D3"
2150 NEXT
2160 FORI=0TO6:DRAW"BM"+STR$(22+32*I)+",0;D3R2D3R2D3R10U3R2U3R2U3":PAINT(27+32*I
,0),4,4
2170 DRAW"BM"+STR$(22+32*I)+",162;U3R2U3R2U3R10D3R2D3R2D3":PAINT(27+32*I,160),4,
4
2180 NEXT
2190 FORI=2TO254STEP252:PAINT(I,2),4,4:NEXT
2199 'Set up the pieces
2200 NA$="NAME":COSUB330:FORI=1TO3:READY$(I),SH(I,1),SH(I,2),SH(I,3),SH(I,4):NE
XTI
2210 NA$="PC":COSUB330:00=1:PL=0:GOSUB2220:00=1+NR:PL=1:GOSUB2220:GOTO2260
2220 POKEW+PL,00-1:NG(PL)=00
2230 READBX:IFBX=999THENRETURN
2240 READY,TP:GOSUB580
2250 00=00+1:GOTO2230
2259 'Set-up Dead Areas
2260 CR=4:DR=DA-1:FORI=0TO DR:GOSUB350:POKEFNBP(0),50:NEXTI:SS=DA
2270 FORJ=1TO10
2280 I=RND(DR):GOSUB380:IFFNB0(0)=99THEN2280ELSEPOKEFNBP(0),99:NEXTJ
2290 SCREEN1,0:RETURN
2299 'End game sequence
2300 G=1000:GOSUB30:IFCO(0)>CO(1)THENPL=0:ELSEPL=1
2310 M$=M$(24)+M$(PL)+M$(PL)+M$(25)+STR$(CO(PL)):GOSUB2320:M$=M$(26):GOSUB2320:GOTO
2310
2320 GOSUB380:0$=INKEY$:IF0$="Y"THENRUNELSEIF0$=""THENGOSUB400:GOTO140
2330 END
2339 'Piece Data BX,BY,TP
2340 DATA PC
2350 DATA 0,8,3, 1,7,1, 1,9,2, 0,6,1, 0,10,2
2360 DATA999
2370 DATA 14,8,3, 13,7,1, 13,9,2, 14,6,1, 14,10,2
2380 DATA999
2389 'More piece data - name,MV,AT,DF,Jumps
2390 DATA NAME
2400 DATA MINER,5,1,3,3
2410 DATA GUNSHIP,3,4,5,2
2420 DATA STARSHIP,0,2,2,0
2429 'Save Program
2430 COSUB20:PRINT"SAVE PROGRAM"
2440 INPUT"VN=":18$
2450 INPUT"POSITION TAPE":C$

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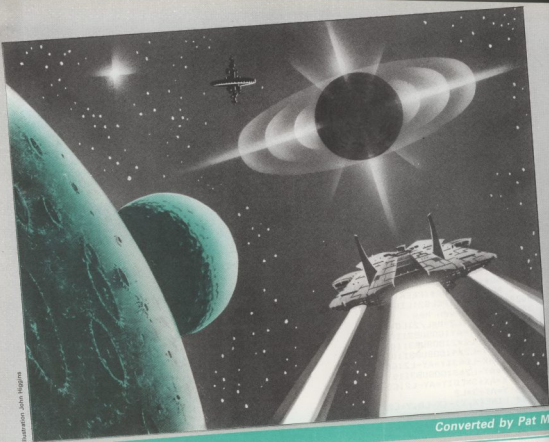
Illustration: John Higgins



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2460 FORI=1TO4:MOTORON:FDRJ=1TO2500:NEXT:MOTOROFF:PRINTI:
2470 CSAVE"SPACE"+B$+CHR$(40+I):NEXT
2480 PRINT"DONE":STOP
2500 STOP
2509 'All messages
2510 ME$(0)="BLUETON"
2520 ME$(1)="REDARE"
2530 ME$(2)="JUMP STARGATES"
2540 ME$(3)="PRESS ENTER"
2550 ME$(4)="BEACON STAR@OCCUPIED"
2560 ME$(5)="NEEDS ARGUNSHIP@TO LAND"
2570 ME$(6)="INSUFFICIENT@ERUS"
2580 ME$(7)="MAXIMUM@FLEET"
2590 ME$(8)="LOST BASE@STARGATE"
2600 ME$(9)="NO DOCKS FREE"
2610 ME$(10)="NO STARGATES@AVAILABLE"
2620 ME$(11)="INDICATE@DIRECTION"
2630 ME$(12)="ENEMY IN@ORBIT"
2640 ME$(13)="MUST BEGIN ORBIT"
2650 ME$(14)="DOCKS@FREE ERUS HGA@"
2660 ME$(15)="HVB@T@DF"
2660 ME$(16)="PRODUCTION"
2670 ME$(17)="LANDING"
2680 ME$(18)="ATTACK"
2690 ME$(19)="HYPER JUMP"
2700 ME$(20)="COMBAT"
2710 ME$(21)="NO "
2720 ME$(22)="YNA"
2730 ME$(23)="JUMP FAILED@SHIP IMPLODES"
2740 ME$(24)="DEAD AREA CLEAR@"
2750 ME$(25)="WINS@ERUS "
2765 ME$(26)="PRESS Y @TO PLAY AGAIN"
2766 ME$(27)="STARGATE@CAPTURED"
2767 ME$(28)="MAX FLEET@NO CAPTURE"
2770 RT$(1)="ATTACKER@ELIMINATED"
2780 RT$(2)="ATTACKER@LOSES HALF"
2790 RT$(3)="ATTACKER@LOSES THREE"
2800 RT$(4)="ATTACKER@LOSES TWO"
2810 RT$(5)="BOTH LOSE TWO"
2820 RT$(6)="NO DAMAGE"
2830 RT$(7)="DEFENDER@LOSES TWO"
2840 RT$(8)="DEFENDER@LOSES THREE"
2850 RT$(9)="DEFENDER@LOSES HALF"
2860 RT$(10)="DEFENDER@ELIMINATED"
2870 DD$=".....34679000000,23568990000,23457899000,22356789900,22345678990
,12344668899,12234557899,11233447799,11122336799,1112225788"
,12344668899,12234557899,11233447799,11122336799,1112225788"

```

Converted by Pat Morin

Runs on a 48K Spectrum

In order to resave this program, type as a direct command, "CLEAR" and then "ENTER". Secondly type, as a direct command, "POKE 24449,128, and then ENTER. Finally type "BSW" LINE 1 and save in the normal way.

```

1 DEF FN a(o)=qb+o
2 DEF FN b(o)=PEEK FN a(o)
3 DEF FN s(o)=bd+16*(by+o*uy)
+bx+o*ux
4 DEF FN q(o)=PEEK FN s(o)
5 DEF FN p(o)=PEEK FN p(o)
6 DEF FN r(o)=PEEK FN r(o)
7 DEF FN x(o)=VAL "... 1-1 1
1 0 2-1 1-1 0-2" (a+2*o TO a*
4+2*o+1)
8 DEF FN e(o)=o<0 OR o>14
9 DEF FN f(o)=o<0 OR o>15
10 DEF FN t(o)=PEEK (a+2*o)
11 DEF FN j(o)=a+57*a+j+o
12 DEF FN n(o)=PEEK FN j(o)
13 DEF FN r(o)=VAL "3467900000
0,23355990000,23457890000,223557
0,23355990000,23456789000,12345678999,12
345578999,11233447799,1112333679
9,11112225788" (o+12*b-7-NDT b+(I
NT (1/a)-2))
14 DEF FN z(z)=INT (RND+2+1)
15 CLEAR 63999: POKE 23559,0:
POKE 24449,0: GO SUB 1790
20 LET p1=1-p1: LET s=i+nr+pt:
GO SUB 1140: GO SUB 520: GO SUB
1070: GO TO 20

```

```

30 PRINT AT 19,0:*****AT 1
9,0: RETURN
50 LET g=20: LET a$=INKEY$: IF
a$="0" AND a$<"7" THEN LET a=UA
L 3: RETURN
63 IF IN 64510=234 THEN POKE 2
3659,2: STOP
65 IF a$="" THEN RETURN
66 GO SUB 150: GO TO 50
68 LET bx=FN s(xx): LET by=FN
s(yy): RETURN
80 LET fs=p*(3*p1+FN s(t1))
80 GO SUB 70
90 GO SUB 70
100 LET px=bx*2+1: LET py=by+1
110 RETURN
120 POKE FN p(xx),bx: POKE FN p
(yy),by: RETURN
130 POKE FN p(fg),FN s(fg)+1: P
OKE FN p(id),aj: RETURN
140 FOR g=0 TO 9-1: NEXT g: RET
URN
150 GO SUB 80: GO SUB 140: GO 3-
150 GO SUB 140: GO TO 170
UB 190: GO SUB 140: FOR f=160 TO
160 FOR v=1 TO 5: PRINT AT py,p
163: BEEP .01-10: PRINT AT py,p
163: BEEP .01: CHR$ f: PAPE
x: PAPE 0: INK cr:CHR$ f: BEEP .01-20
.01: INK cr:CHR$ f: RETURN
170 GO SUB 80: PRINT INK 1+p1:
170 GO SUB 80: PRINT INK 1+p1:
PAPER 8:AT py,px:fs(1):AT py+1,p
x:fs(2): LET ik=1+p1: GO TO 200
180 PRINT PAPER 8: INK 4:AT py:
px:1:AT py+1,px:1: LET ik=4:
GO TO 200
190 LET CR=6: PRINT PAPER cr:AT

```

```

PY, PX; " " AT PY+1, PX; " " : LET I
100
200 PLOT INK I, PX+8, 180-PY+8:
DRAW INK I, 7, 0: RETURN
310 BEEP 0, 1: FOR I=0 TO 50
SUB 230: NEXT I: IF CR=6 THEN
LET CR=1+PL
320 IF 99=hh THEN RETURN
325 FOR I=hh+1 TO 99: GO SUB 23
0: NEXT I: RETURN
230 LET 99=FN B(I): IF 99=0 THE
N RETURN
235 GO SUB 70: GO SUB 60: PRINT
FLASH CR=4: INK 0: PAPER 0: WE
R 1: AT PY, PX; " " AT PY+1, PX; " " :
250 LET aa=-1: IF a=0 THEN LET
a=aa: RETURN
253 LET ux=FN X(I): LET uy=FN X
(I): IF FN 5(bx+ux) OR FN 5(bx+u
y) THEN LET aj=aa: RETURN
258 LET aj=FN G(I)
260 IF aj>2*nr OR aj=0 THEN RET
URN
265 LET na=1-(aj<nr): (aj<nr)= (aj<nr)
1: RETURN
270 BEEP 1, 1: STOP
280 GO SUB 100: PAPER CR: INK 0
285 CR=6 AND (PX+1 AND PY+1 AND
ATTR (PY, PX-1, PX+1 AND PY+1 AND
ATTR (PY, PX-1) AND CR=6 AND (A
1-INT (ATTR (PY, PX-1)/3)+8=0) T
HEN LET Z=1: INK 0
285 PRINT AT PY, PX-1, Z$: INK 0:
PAPER CR: " " PAPER 0: INK CR:
LET Z=0: IF PX<20 AND PY<10
EN LET Z=0: ATTR (PY, PX+1) 54: TH
EN
290 PRINT Z$: AT PY, PX-1: PAP
ER CR: INK 0-2+1*CR<5 AND PY<10
AND PY+1 AND ATTR (PY+1, PX-1)=40
1: LET Z=1: IF ATTR (PY+1, PX-1)=40
AND CR=6 AND (ATTR (PY+1, PX-1)=
40 OR ATTR (PY+1, PX-1)=INT (ATTR
(PY+1, PX-1)/3)+8=0) THEN LET Z=
295 PRINT Z$: INK 0: PAPER CR:
" " PAPER 0: INK CR: LET Z=0:
ATTR (PY+1, PX+1) 54: THEN LET Z
=1: INK 0
300 IF CR=6 THEN GO SUB 200
305 PRINT Z$: INK 0: PAPER 0: R
ETURN
310 LET q=0: FOR i=0 TO dr
315 LET q=q+1: GO SUB 380: IF b
X<0 OR bX>11 THEN GO TO 310
320 POKE i+dr, q: NEXT i
325 FOR i=0 TO dr: LET r=FN Z(i
+1)-1: LET r=PEEK (i+dr): POKE r
+1, r: RETURN
330 GO SUB 380: GO SUB 230
335 IF CR=6 THEN RETURN
340 LET J=FN q(10)-50: IF J<0 TH
EN RETURN
345 POKE FN S(I), J: IF J=49 THE
N GO SUB 100: GO TO 180
350 RETURN
355 LET q=PEEK (i+dr)
360 LET by=2*INT (q/15)+INT ((q
-15)*INT (3/15))/8: LET bx=2+q-1
490 LET G=100: GO SUB 140: GO T
O 30
520 LET SP=PL: FOR P=0 TO 1: LE
T PL=P
530 FOR q=1+nr+PL TO FN (I): L
ET qq=q: IF FN 5(bx+qq)=99 THEN GO
SUB 580: GO TO 530
580 NEXT q: NEXT P: LET pl=sp:
RETURN
590 LET i=qq: IF qq=FN (I) THE
N GO SUB 70: POKE FN S(I), 0: GO
TO 570
585 FOR q=q+1 TO FN (I): LET
qq=q: GO SUB 70: POKE FN S(I), qq
1: IF J=0 TO 52-1: POKE FN P(I
)-52, FN (J): NEXT J: NEXT q
570 POKE W+PL, FN (I)-1: LET qq
=1: RETURN
580 FOR i=0 TO 52-1: POKE FN P(I

```

```

I)=0: NEXT I: GO SUB 120
590 POKE FN P(I), 1: FOR I=1 T
O 1: POKE FN P(I+2), 5(1P, I): NEX
T I
600 POKE FN P(n), n(1P+1): LET
n(1P+1)=n(1P+1)+1: POKE FN S(I)
70: POKE W+PL, FN (I)+1: GO TO 1
610 LET sq=qq: LET sx=bx: LET s
y=by: LET er=0: LET a=1: LET JJ=
620 GO
630 LET qq=qq: IF sq=qq AND FN
n(1P+1)=3 THEN GO TO 630
623 LET a=a+1: IF a=7 THEN GO T
O 620
625 PRINT AT 21, 0: "Must be in 0
630 LET JJ=JJ: FOR q=5 TO FN (I
0): LET qq=qq: IF sq=qq AND FN m
(1P+1)=3 THEN LET JJ=JJ: LET
JJ=FN m(1P+1): GO SUB 80: GO TO 6
635 GO TO 720
640 LET f3=0: FOR a=1 TO 6: GO
SUB 250: IF na=1 THEN LET a=a+1: N
EXT a: GO TO 720
645 IF JJ=0 THEN LET f3=0
646 NEXT a: IF f3=0 THEN GO TO
720
650 LET a=f3: LET ux=FN X(I): L
ET uy=FN X(I): GO SUB 100: LET
r=100+(I-JJ-nr)+10
660 IF (r<0 OR r>100) THEN LET r=
(r)/100+100
670 GO SUB 30: PRINT "Jump star
9405 r, "Press Y,N,A"
680 GO SUB 50: GO TO 680+10: f3=
"Y": 40+(f3="N"): 55+(f3="A")
690 IF r=FN Z(100) THEN LET i=0
700 failed: GO SUB 30: PRINT AT 21, 0: "Jump
710 failed: 3*ip 1*plodes: LET er=
1: LET qq=sq: GO TO 170
720 LET ix=bx: LET iy=by: LET bx=
bx+ux: LET by=by+uy: LET er=er+1
730 LET by=by: LET er=er: LET bx=bx
+ix: LET by=by+uy
740 LET qq=sq: LET bx=bx+ux: LE
T by=by+uy: POKE FN S(I), qq: GO
SUB 120: GO TO 170
750 NEXT q: PRINT AT 21, 0: "No s
targets available"
760 GO SUB 490
770 LET er=2
780 LET qq=sq: GO TO 80
790 LET bx=bx: LET by=by: LET e
r=4: LET bx=bx+ux: LET by=by+uy:
LET ix=bx: LET iy=by: LET a=1:
LET f2=0
795 IF f2=0 THEN PRINT AT 21, 0:
"Ready for a gunship to land": LET e
r=5: GO TO 800
800 LET bx=bx: LET by=by: LET c
r=0: GO SUB 200: POKE FN S(I), 0
810 LET bx=bx: LET by=by: GO SU
B 280: LET ix=bx: LET iy=by: POKE
W+PL, FN (I)-1: PRINT AT 21, 0:
"Beacon star occupied": GO TO 49
800 GO SUB 490: LET bx=bx: LET
by=by: RETURN
810 LET sq=qq: GO SUB 1000: IF
er THEN GO TO 980
820 LET er=0: LET qq=5: IF FN m
(1P+1)=3 THEN PRINT AT 21, 0: "Lost
base star gate": GO TO 980
830 LET f1=0: FOR i=1 TO 6: LET
qq=qq: GO SUB 70: LET a=1: GO SU
B 250: IF a=7 THEN GO TO 370
840 LET bx=bx+ux: LET by=by+uy
850 LET f2=1: FOR a=1 TO 6: GO
SUB 250: IF na=1 THEN LET a=a+1: L
ET f1=f1
860 NEXT a: IF f2 THEN LET f1=f
1+1: LET k(f1)=1
870 NEXT i
880 IF f1=0 THEN PRINT AT 20, 0:

```

DDDDDD

```

"No docks free": GO TO 980
890 GO SUB 30: PRINT "Docks free"
900 "f1, ERU": "c(pl+1)
910 GO SUB 920: GO TO 910+20*(a
920 LET p=50: LET a$=INKEY$: IF
930 LET p=50: RETURN "Press Enter"
940 PRINT OVER 1, AT 22,0, "Press
950 M,G,A": GO SUB 140: GO TO 920
960 LET cs=3: LET tp=1: GO TO 9
970
980 LET cs=5: LET tp=2
990 IF cs>(pl+1) THEN GO TO 91
0
995 BEEP .2,36: BEEP .2,24: LET
c(pl+1)=c(pl+1)-5: LET a=k(f1)
LET bx=bx+FN x(0): LET by=by+F
N(x1): LET f1=f1-1: GO SUB 50
960 LET qq=FN f(0)+1: GO SUB 50
0
970 GO SUB 1000: IF er=0 THEN G
O TO 980
980 GO SUB 490: GO TO 80
990 LET qq=sq: IF c(pl+1)<3 THEN
1000 LET er=0: PRINT AT 21,0, "Insuff
icient ERU's for more": RETURN
1005 IF FN l(0)=nr+nr/2 THEN LE
T er=f: PRINT AT 1,0, "Maximum f
leet size deployed"
1010 RETURN
1020 LET dx=ABS (sx-tx): LET dy=
ABS (sy-ty): LET idx=2/dy/2: LET
ABS (dx/2-dy/2): LET k=dx+i:
T j=ABS (dx/2-dy/2): LET an=i+j
LET l=dx+k THEN LET an=k
1030 IF an>l THEN LET an=l
1040 IF an>l THEN LET an=l
1050 RETURN
1070 IF dr<0 THEN GO TO 2300
1075 LET cr=6: LET i=dr: GO SUB
050: LET dr=dr-1: IF dr>0 THEN
LET i=dr: LET cr=1: GO SUB 350
1080 IF ss<0 THEN IF i<200 THEN G
O SUB 380: POKE FN s(0),0: LET c
r=6: GO SUB 290
1085 IF ss<0 THEN NEXT j: LET j
1090 FOR j=0 TO 1: LET d(j+1)=20
0
1100 LET ss=ss+1: IF ss=76 THEN
LET ss=da
1110 LET i=ss: GO SUB 380: IF FN
q(0)<0 THEN GO TO 1180
1114 FOR a=1 TO 6: GO SUB 250: I
F a<49 AND a>99 THEN NEXT a:
GO TO 1130
1120 LET d(j+1)=ss: POKE FN s(0)
1130 GO SUB 100: LET cr=4: GO SU
B 280
1130 NEXT j: RETURN
1140 IF FN l(0)=nr+nr/2 THEN GO TO
2500
1145 FOR q=5 TO FN l(0): LET qq=
q: LET c(pl+1)=c(pl+1)+3*(FN a(t
q)-3): POKE FN p(1d),0: NEXT
p(fg),0: POKE FN p(1d),0: NEXT
p(fg),0: GO SUB 30
1150 PRINT AT 19,0, OVER 1, TAB 1
2, a$(pl+1), TAB 14, "Press Enter"
PAUSE 25: LET INKEY$: CHR$ 13 TH
EN GO TO 1150
1160 LET a$="": LET qq=s: LET ZZ
=0
1170 GO SUB 30: LET bv=FN a(00):
IF bv<0 THEN GO TO 1310: TAB
14, "Print at 19,0: a$(pl+1), TAB
14, "Moves": TAB 30, bv: IF FN a(t
t), FN a(00), TAB 14, "Attack factor
s": FN a(00), TAB 14, "Defence factors
": FN
a(1d)
1190 GO SUB 80: IF a$="C" THEN G
O TO 1280
1200 LET a$="f1
1210 PRINT OVER 1, AT 22,0, "Ente
r command (C,S,F,J,P,1-6)": GO R
SUB 50: GO TO 1210+30*(a$="0" OR
ND a$("7")+70*(a$="C" OR a$="S"))

```

```

+110*(a$="F")+20*(a$="J")+10*(a$
="P")
1220 GO SUB 30: PRINT "Productio
n": GO SUB 810: GO TO 1190
1230 GO SUB 30: PRINT "Hyper Jum
p": GO SUB 610: GO TO 1180+100*(
er<21)300*(er=1)
1240 GO SUB 250: GO SUB 30
1250 IF a$=49 AND FN a(11)=1 THE
N PRINT "Landings": GO SUB 750: G
O TO 1210+100*(er=4)
1260 IF a$<0 THEN FOR v=1 TO 50
: BEEP .01,0: BEEP .01,10: NEXT
v: GO TO 1210
1270 POKE FN s(0),0: POKE FN s(1
) qq: GO SUB 190: LET bx=bx+ux
LET by=by+uy: GO SUB 120: GO SUB
170
1280 FOR a=1 TO 6: GO SUB 250: I
F a=1 THEN GO SUB 130: LET a$="f1
00": GO SUB 30: PRINT AT 20,0, "At
tack": FN a(00)
1290 NEXT a: IF a$="f100 THEN FOR
v=1 TO 36: BEEP .01,v: NEXT v: G
O SUB 30: LET zz=1
1300 IF a$<"C" AND a$<"S" THEN
LET mv=mv-bf: IF mv>0 THEN GO T
O 1100
1310 FOR v=36 TO 1 STEP -1: BEEP
.01,v: NEXT v: LET qq=qq+1: IF
q<=FN l(0) THEN GO TO 1170
1320 GO SUB 30: IF NOT ZZ THEN P
RINT "No combat": RETURN
1330 PRINT "Combat": LET hx=0: F
OR q=5 TO 6: LET q=5: IF FN
m(fg)=0 THEN GO TO 1360
1340 IF FN m(fg)=1 THEN LET a$=F
N m(1d): POKE FN j(1d),1: GO TO
1350
1350 GO SUB 80: PRINT AT 20,0, "I
ndicate direction"
1360 GO SUB 50: GO SUB 250: IF a
a<0 THEN GO TO 1350
1365 PRINT AT 20,0, "GO SUB 130
: POKE FN j(1d),1: BEEP .2,36:
BEEP .2,24
1370 IF hx THEN LET cr=6: GO SUB
210
1380 LET ap=0: LET qq=s: LET hh=
0
1390 IF FN m(fg)=0 THEN LET qq=q
+1: GO TO 1290+200*(qq>FN l(1d))
1400 LET a$=FN m(1d): POKE FN a(
0),a: POKE FN j(1d),1: GO SUB
1430
1440 LET qq=qq+1: IF qq>FN l(0)
THEN GO TO 1440
1450 IF FN m(1d)=a THEN GO SUB
1430
1455 GO TO 1410
1460 POKE FN p(fg),0: LET ap=ap+F
1: POKE FN a(hh),qq: LET ap=ap+F
N m(a): RETURN
1465 LET a$=FN b(0): LET dp=FN a
(1d): GO SUB 1740: LET b=INT a: I
F a>6 OR a<1 THEN LET rt=1+9*(
a/6): GO TO 1470
1470 LET rt=FN s (FN z(10)): IF r
t=0 THEN LET rt=10
1475 LET cr=4: GO SUB 210: LET h
x=1
1480 GO SUB 30: PRINT "r$(rt)
UB 30
1500 GO SUB 1510+rt+10+20*(rt/2)
+20*(rt/4)+10*(rt/5)+20*(rt/3)+2
0*(rt/9)
1510 GO TO 1370
1520 LET k=9: GO TO 1580
1530 FOR a=1 TO hh: LET i=e: LET
qq=FN b(1): LET j=FN a(1d): LET
i=INT (1.5+j/2)
1540 IF j>k THEN POKE FN p(1d),j
1545 IF j<k THEN POKE FN p(1d),j
1550 NEXT e: RETURN
1560 LET k=3: GO TO 1580

```



```

2 PRINT FLASH,1,AT 10.8;"STO
P THE TAPE" PAUSE 200;"CLS":FL
ASH 0

```

```

5 BORDER 0: PAPER 0: INK 7: C
LS: LET z$=""

```

```

10 OVER 0: LET nd=0: LET npc=0
: LET b=0: LET np=7: LET a=0: LE
T pc=0: LET k=0: LET ynk: LET z=
k: LET ts=2: LET ti=ts: LET s=ti
: LET a1=s

```

```

15 FOR a=1 TO 50: PLOT INT (RN
D*247+9),INT (RND*151+10): NEXT
a: PLOT 0,16: DRAW 255,0: PLOT 0
,16: LET a=5: LET a=0: FOR w=0 T
O 255: LET f=INT (RND*12+1): LET
a=a+f: IF a>255 THEN GO TO 25
20 DRAW f,e: LET e=e: NEXT w
25 DIM e(7): DIM f(7): FOR a=1
TO 7: LET e(a)=a*2: NEXT a: FOR
a=1 TO 7: LET f(a)=INT (RND*29+
2): NEXT a:

```

```

30 FOR a=1 TO 7: PRINT AT e(a)
,f(a): OVER 1: INK 6;"B": NEXT a
: FOR a=0 TO 31: PRINT AT 0,a: I
NK 7;"H": NEXT a: FOR a=1 TO 19:
PRINT AT a,0: INK 7;"K": NEXT a
35 PRINT AT 20,7: INK 4;"I":AT
21,7;"J":AT 20,25;"I":AT 21,25
;"J": PRINT AT 19,16: INK 5;"P":
AT 20,15:"CDE":AT 21,15:"FGH"
40 OVER 1: IF ATTR (ss,ts)=3 Y
HEN LET n=nn-1: LET nd=nd+1: G
O SUB 535: PRINT AT ss,ts: OVER
0: INK 7: " "

```

```

45 RANDOMIZE : LET q=1
50 IF k=1 THEN LET h=INT (RND
*19+12): GO TO 55
51 IF w=1 THEN LET h=INT (RND
*20+1): GO TO 55
53 LET h=INT (RND*30+1)
55 LET n=q: LET s=0: LET n=1:
GO SUB 19: LET i=INT (RND*9+1)
60 GO SUB 230: LET pc=pc+1: GO
SUB 505: REN *MAIN LOOP*
65 IF pc=4 AND b=1 THEN GO SU
B 425: LET pc=0
70 IF pc=4 THEN LET pc=0
75 IF n=0 THEN GO TO 550
80 IF n=0 THEN GO TO 125
85 IF s=50 THEN GO TO 165
90 IF s=100 THEN GO TO 145
95 IF i=0 THEN LET s=50: PRIN
T AT g,h;"M":AT g,h;"N": LET z=1
0-19: PRINT AT g,h: INK 7;"N":AT
g,h: INK 3;"O": GO TO 120
100 LET g=h-1: IF ATTR (g,h)=70
AND g=1 AND h=1 AND b=1 THEN
RANDOMIZE USR 32555: RANDOMIZE
USR 32505: GO SUB 455: LET b=0:
LET s=100: GO TO 140
105 IF ATTR (g,h)=70 THEN LET s
=100: RANDOMIZE USR 32555: GO TO
140
110 IF g=18 THEN PRINT AT g,h:
INK 3;"M": GO TO 120
115 PRINT AT g,h: INK 3;"M":AT
g+1,h: INK 7;"M"
120 IF n=0 THEN GO TO 550
125 IF n=0 THEN GO TO 45
130 GO SUB 230: GO SUB 210
135 GO TO 60
140 PRINT AT g,h: INK 7;"B":AT
g+1,h;"M":AT g,h: BRIGHT 1: INK
2;"O": GO SUB 415: GO TO 120
145 LET g=h-1: IF g<1 THEN PRI
NT AT g+1,h: BRIGHT 0: INK 7;"O"
: LET n=0: LET n=nn-1: LET n=nn
-1: IF n=0 THEN GO TO 550
150 IF n=0 THEN GO TO 120
155 PRINT AT g,h: BRIGHT 1: INK
2;"O":AT g+1,h: BRIGHT 0: INK 7
;"O": GO TO 120

```

Pirates Polyps

ARCADE ACTION IN THE HEAVENS. BY PAT NORRIS

RUNS ON A SPECTRUM IN 48K

```

160 PRINT AT g,h: BRIGHT 0: INK
7;"B":AT g-1,h;"O":AT g,h: BRIG
HT 1: INK 2;"O": GO SUB 415: GO
TO 120
165 LET d=g: LET t=h: LET g=g+1
170 IF ATTR (g,h)=70 AND g=1 A
ND h=1 AND b=1 THEN RANDOMIZE
USR 32555: RANDOMIZE USR 32505:
GO SUB 455: LET b=0: LET s=100:
GO TO 160
175 IF ATTR (g,h)=6 THEN LET s
=100: RANDOMIZE USR 32555: GO TO
160
180 IF ATTR (g,h)=4 THEN GO SU
B 460: GO TO 120
185 IF ATTR (g,h)=5 THEN GO SU
B 460: GO TO 545
190 IF g=20 THEN PRINT AT g-1,
h: INK 7;"O":AT g,h: INK 2: BRIG
HT 1;"L": LET n=0: LET n=nn-1:
RANDOMIZE USR 32505: PRINT AT g,
h: OVER 0: INK 2;"L": GO TO 120
195 IF h=1 AND h=30 AND g=18 TH
EN LET h=h+INT (RND*3-1): PRINT
AT g,h: INK 3;"O":AT d,t: INK 7
;"O": GO TO 120
200 PRINT AT g,h: INK 3;"O":AT
d,t: INK 7;"O": GO TO 120
210 IF INKEY$="z" THEN k=0 THEN
GO SUB 280: RETURN
215 IF INKEY$="o" THEN b=0 THEN
GO SUB 375: RETURN
220 IF INKEY$="m" THEN w=0 THEN
GO SUB 340: RETURN
225 RETURN
230 LET ts=ts+(INKEY$="p")-(INK
EY$="q")
240 IF ts>30 THEN LET ts=30
245 LET ts=1 THEN LET ts=1
245 LET ss=ss+(INKEY$="a")-(INK
EY$="q")
250 IF ss>18 THEN LET ss=18
255 IF ss<1 THEN LET ss=1
260 PRINT OVER 0:AT 0,ts: INK
7;"R":INK 7;"K":AT 0,ts-1;"K"
265 PRINT OVER 0:AT ss-1,0: IN
K 7;"K":AT ss,0;"R":AT ss+1,0;"K"

```

```

270 RETURN
280 BRIGHT 0: PLOT 66,16: DRAW
INK 0,(ts-7)*8,(19-ss)*8: RANDO
MIZE USR 32480: IF ATTR (ss,ts)=
6 THEN GO TO 325
285 IF ATTR (ss,ts)=66 THEN GO
SUB 300: GO TO 325

```

```

290 IF ATTR (ss,ts)=3 THEN GO
SUB 305: GO TO 330
295 GO SUB 320: GO TO 330
300 PRINT AT ss,ts: INK 7;"O"
GO SUB 535: GO SUB 335: RETURN
305 LET n=nn-1: LET nd=nd+1:
GO SUB 535
310 IF s=0 THEN PRINT AT ss,t
: INK 7;"M": GO TO 320
315 IF s=50 THEN PRINT AT ss,
s: INK 7;"O"
320 PRINT AT ss,ts: INK 2: BRIG
HT 1;"L": RANDOMIZE USR 32505:
RETURN
325 LET t=0: LET d=1: RANDOMIZ
E USR 32505: PLOT INVERSE 1,60:
6: DRAW INK 0,(ts-7)*8,(19-ss)*
8: RETURN
330 PLOT INVERSE 1,60,16: DRA
W INK 0,(ts-7)*8,(19-ss)*8: GO
SUB 335: RETURN
335 PRINT AT ss,ts: INK 7: BRIG
HT 0;"L": RETURN
340 BRIGHT 0: PLOT 204,16: DRA
W INK 0,(ts-25)*8,(19-ss)*8: RA
NDOMIZE USR 32480: IF ATTR (ss,t
s)=6 THEN GO TO 360
345 IF ATTR (ss,ts)=66 THEN G
O SUB 300: GO TO 360
350 IF ATTR (ss,ts)=3 THEN GO
SUB 305: GO TO 365
355 GO SUB 320: GO TO 365
360 RANDOMIZE USR 32505: PLOT
INVERSE 1,204,16: DRAW INK 0,(
ts-25)*8,(19-ss)*8: RETURN
365 PLOT INVERSE 1,204,16: DRA
W INK 0,(ts-25)*8,(19-ss)*8: G
O SUB 335: RETURN
375 BRIGHT 0: PLOT INK 5,132:
1: DRAW INK 8,(ts-16)*8,(19-ss
)*8: RANDOMIZE USR 32530
380 IF ATTR (ss,ts)=6 THEN RA
NDOMIZE USR 32555: GO SUB 460:
RETURN
385 LET ss=55: PLOT INVERSE 1
: INK 5,132,21: DRAW INK 0,(ts
-16)*8,(19-ss)*8: RETURN
390 REN **RESTORE POLYPS**
395 LET n=nn-1: LET nd=nd+1
400 FOR p=1 TO 7: IF e(p)=50 TH
EN LET e(p)=ss: LET f(p)=ts: R
INT AT ss,ts: INK 6;"B": RETURN
405 NEXT p: RETURN
415 FOR p=1 TO 7: IF e(p)=0 AND
f(p)=0 THEN LET e(p)=50: RETU

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420 NEXT P: RETURN
425 PLOT INVERSE 1; INK 5;132,
21; DRAW INK 0;(t1-16)*8,(18-s1
480: PRINT AT s1,t1; BRIGHT 0; I
477,"B": RANDOMIZE USR 32555
430 IF t1<16 THEN LET t1=t1+1
435 IF t1>16 THEN LET t1=t1-1
440 LET s1=s1+1: IF s1>18 THEN
LET s1=18
445 IF s1=18 AND t1=16 THEN LE
T b0: LET npc=1: LET npc=npc+
1: RETURN
450 LET b=1: PRINT AT s1,t1; IN
16; BRIGHT 1;"B"
455 PLOT INVERSE 1; INK 5;132,
21; DRAW INK 0;(t1-16)*8,(18-s1
480: RETURN
460 LET b=1: PRINT AT ss,ts; IN
17,"B": PRINT AT ss,ts; INK 6;
BRIGHT 1;"B": GO SUB 415: LET s1
485: LET t1=ts
465 FOR p=1 TO 7: IF e(p)=s1 AN
D f(p)=t1 THEN LET e(p)=50: RET
URN
470 NEXT P: RETURN
480 PRINT AT g-1,h; INK 7;"O";A
19,h; INK 2; BRIGHT 1;"L";AT g+
1,h;"L": RANDOMIZE USR 32585: RA

```

```

NDOMIZE USR 32580: PAUSE 40: RA
NDOMIZE USR 32580: IF h=7 THEN L
ET k=1
485 IF h=25 THEN LET y=1
490 IF k=1 AND y=1 THEN GO TO
560
495 LET n=0: LET n=n+1: LET z
z=10-10: PRINT OVER 0,AT g,h;"
"AT g+1,h;" ": RETURN
505 LET o=0+1: IF o>7 THEN LET
o=1
510 IF e(o)=50 THEN RETURN
515 PRINT AT e(o),f(o); INK 7;"
B"
520 LET f(o)=f(o)-1: IF f(o)<1
THEN LET f(o)=31
525 PRINT AT e(o),f(o); INK 6;"
B": RETURN
535 IF ss=0 AND ts=h THEN LET
n=0: RETURN
540 RETURN
545 GO SUB 555: PRINT AT 18,0;
INK 6;"GAME OVER PROJECTOR DESTR
OYED": GO TO 565
550 GO SUB 555: PRINT AT 18,0;
INK 7;"GAME FINISHED": GO TO 565
555 OVER 0: PRINT AT 18,0;z$;AT
19,0;z$;AT 20,0;z$;AT 21,0;z$;

```

```

RETURN
560 GO SUB 555: PRINT AT 18,0;
INK 5;"GAME OVER LASERS DESTROYE
D": GO TO 565
565 PRINT AT 20,0; INK 7;"POLYP
S SAFE =";AT 21,0;"POLYPS LOST =
";AT 20,19;"MISSILES"AT 21,18;"
DESTROYED ="
570 PRINT AT 20,14; INK 7;npc;A
T 21,14,7-npc;AT 21,28,nd
575 PRINT AT 7,2;"Press "p" f
or another game"
580 IF npc=0 AND npc<3 THEN LE
T p$="Not very good are you!"
585 IF npc>2 AND npc<6 THEN LE
T p$="You need a little practice "
590 IF npc=6 THEN LET p$="Not
bad at all."
595 IF npc=7 THEN LET p$="BRIL
LIANT play."
600 IF npc=8 THEN LET p$="YOU'
RE HOPELESS try tidlywinks"
605 PRINT AT 2,1;p$
610 IF INKEY$="p" OR INKEY$="P"
THEN GO TO 620
615 GO TO 600
620 CLEAR : RUN 5

```

Sun Polyps are one of the galaxy's many natural phenomena. Clouds of these small creatures drift in the outer atmospheres of planets, enriching and increasing it.

But planets fortunate enough to have these minute beings in orbit around them, now find the more mercenary elements of the galaxy eager to get their hands on them.

In *Pirates and Polyps*, it is your job to protect the polyps from a band of pirates.

You control a scanner and two laser bases on the surface of the planet and must stop pirate vessels from destroying and stealing polyps.

If both your laser bases or the projector are hit, then the game is lost. And if all the polyps are stolen the game is also over.

But you can collect the polyps yourself, by aiming your scanner at one and enticing it down to earth.

In order to collect a polyp or destroy a pirate vessel radar scanners at the top and left side of the screen must be lined up onto the appropriate targets. Key "Z" will fire the LEFT laser base, key "M" will fire the RIGHT

laser base. Key "O" will bring the PROJECTOR into operation.

TOP SCANNER

KEY O = LEFT

KEY P = RIGHT

SIDE SCANNER

KEY Q = UP

KEY A = DOWN

When a pirate vessel lands on a polyp it will be captured. The pirate will change to red and proceed to the top of the screen. You will lose the polyps if the pirate reaches the top

of the screen.

But a "stolen" polyp can be saved by destroying the pirate with laser fire.

Pirates come in four different guises, so don't be fooled by them. If the pirate ships cannot find a polyp then they turn and head back to earth bent on destruction. If they manage to hit your scanners or a laser base, it will be destroyed.

If a laser base is destroyed then it is not us-

able. If the projector has locked onto a polyp, then the polyp will be drawn into the projector automatically, unless a pirate ship intervenes.

Laser fire destroys pirates but has no effect on the polyps. The projector has no effect on pirate vessels.

It's a hard game to win but the tactics will soon become clear when you've had a few turns at polyp collecting.

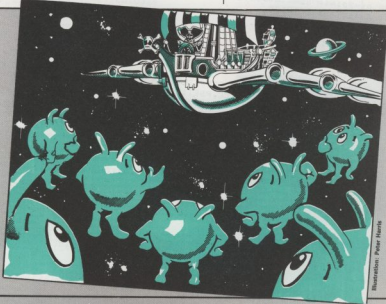


Illustration: Peter Hertz

On the Dragon, Pirates & Polyps has undergone a few changes in the use of keys.

It uses the arrow keys to move the laser base sights, rather than Q,A,O,P and B rather than O.

The bit configuration is used on the screen to identify pieces and to avoid confusion the projection flashes its beam.

```

1 CLS:PCLEAR8:CLEAR500,&H7000:GOSUB5000:GOTO200
2 FORJ=1TO4:IFPEEK(J+340)=223 THENONJ GOSUB7,6,4,5
3 NEXTJ:RETURN
4 TS=TS+10*(TS>10):PUT(TS-10,0)-(TS+15,7),AA,PSET:RETURN
5 TS=TS-10*(TS<240):PUT(TS-10,0)-(TS+15,7),AA,PSET:RETURN
6 SS=SS-8*(SS<144):PUT(0,SS-8)-(9,SS+15),DD,PSET:RETURN
7 SS=SS+8*(SS>8):PUT(0,SS-8)-(9,SS+15),DD,PSET:RETURN
8 GET(X,Y)-(X+9,Y+7),VV,G:RETURN
9 AH=FNAT(0):X=X+10:IFAH=9THENPUT(X,Y)-(X+9,Y+7),RR,PSET:RETURN ELSEPUT(X,Y)-(X+
9,Y+7),VV,PSET:RETURN
15 COLOR CR:LINE(65,159)-(5+TS,8+SS),PSET:RETURN
16 COLOR CR:LINE(185,159)-(5+TS,SS+8),PSET:RETURN
20 RESTORE
30 READA$:IFA$=NA$ THENRETURNELSE30
40 AY=20:M$="GAME OVER":GOTO61010
90 X=T1:Y=S1:GOTO100
92 X=T1:Y=D:GOTO100
94 X=F(0):Y=E(0):GOTO100
96 X=H:Y=G:GOTO100
98 X=TS:Y=SS
100 ON ASC(P$)-64 GOTO105,115,120,105,105,105,105,105,140,145,150,155,16
0,165,170,175,105,180,105,185
105 RETURN
115 PUT(X,Y)-(X+9,Y+7),BB,PSET:RETURN
120 PUT(X,Y)-(X+29,Y+15),CC,PSET:RETURN
130 PUT(X,Y)-(X+9,Y+15),II,PSET:RETURN
135 PUT(X,Y)-(X+9,Y+7),JJ,PSET:RETURN
140 PUT(X,Y)-(X+9,Y+7),KK,PSET:RETURN
145 PUT(X,Y)-(X+9,Y+7),LL,PSET:RETURN
150 PUT(X,Y)-(X+9,Y+7),MM,PSET:RETURN
155 PUT(X,Y)-(X+9,Y+7),NN,PSET:RETURN
160 PUT(X,Y)-(X+9,Y+7),PP,PSET:RETURN
165 PUT(X,Y)-(X+9,Y+7),QQ,PSET:RETURN
170 PUT(X,Y)-(X+9,Y+7),RR,PSET:RETURN
175 PUT(X,Y)-(X+9,Y+7),TT,PSET:RETURN
180 PUT(X,Y)-(X+9,Y+7),VV,PSET:RETURN
185 PUT(X,Y)-(X+9,Y+7),VV,PSET:RETURN
190 '*** START GAME ***
200 PMODE3,1:PCLS2
201 MD=0:PS=0:B=0:NP=7:O=0:PC=0:K=0:YY=K:Z=K:TS=10:T1=TS:SS=0:S1=SS
205 COLOR1:LINE(255,176)-(0,176),PSET,BF:COLOR4:LINE(255,176)-(0,176),PSET,E=-S1
A=0:FORH=0TO255:F=NRND(8)+4:A=A+F:IFA>255THEN215
210 LINE-(A,176+E),PSET:E=5*(E=0):NEXTH
215 FORA=1TO7:E(A)=16*A:IF(A)=10*(NRND(22)+2):NEXTA
220 A=0:FORO=1TO7:P$="B":GOSUB94:NEXTO:O=A:P$="K":Y=0:FORX=0TO240STEP10:GOSUB10
0:NEXTX:PSET(254,3,4):PSET(254,4,4):FORY=8TO152STEP8:X=0:GOSUB100:NEXTY
235 GOSUB5:GOSUB6:X=60:Y=160:P$="I":GOSUB100:X=180:GOSUB100:X=120:Y=152:P$="P":G
OSUB100:X=110:Y=160:P$="C":GOSUB100:GOSUB6090:SCREEN1,0
240 X=TS:Y=SS:IFFNAT(0)=20THENNM=NM-1:MD=MD+1:GOSUB735:P$="R":GOSUB99
245 R=NRND(-TIMER):O=1
250 IFK=1THENH=10*(NRND(15)+7):GOTO255
251 IFY=1THENH=H*(NRND(16)):GOTO255
253 H=NRND(23)*10
255 NM=Q:S=0:M=1:G=152:I=NRND(9)*8
260 GOSUB2:PC=PC+1:GOSUB8705
265 IFPC>4 AND B=1THENGOSUB625:PC=0
270 IFPC>4THENPC=0
275 IFNP=0THEN750
280 IFM=0THEN325
285 IFS=50THEN365
290 IFS=100THEN345
295 IFI=G THENS=50:P$="J":GOSUB96:P$="N":GOSUB96:Z=10^10:P$="O":GOSUB96:GOTO320
300 G=G-8:X=H:Y=G:GET(X,Y)-(X+9,Y+7),VV,G:IFFNAT(0)=12 AND G=S1 AND H=T1 AND B=1

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THENPLAYM4$:GOSUB655:B=0:S=100:GOTO340
305 X=H:Y=G:IFFNAT(0)=9. THENS=100:PLAYM1$:GOTO340
310 IFG=144THENP$="M":GOSUB96:GOTO320
315 PUT(H,G+8)-(H+9,G+15),VV,PSET:GET(H,G)-(H+9,G+7),VV,G:PUT(H,G)-(H+9,G+7),HH,
PSET
320 IFNP=0THEN750
325 IFNM=0THEN245
330 GOSUB2:GOSUB410
335 GOTO260
340 X=H:Y=G:PUT(H,G)-(H+9,G+7),RR,PSET:GOSUB8:PUT(H,G+8)-(H+9,G+15),RR,PSET:PUT(
H,G)-(H+9,G+7),QQ,PSET:GOSUB615:GOTO320
345 G=G-8:IFG<8THENPUT(H,G+8)-(H+9,G+15),VV,PSET:M=0:NP=NP-1:NH=NM-1:IFNP=0THEN7
50
350 IFM=0THEN320
355 X=H-10:Y=G+8:GOSUB9:X=H:Y=G:GOSUB8:PUT(H,G)-(H+9,G+7),QQ,PSET:GOTO320
360 PUT(H,G-8)-(H+9,G-1),RR,PSET:PUT(H,G)-(H+9,G+7),QQ,PSET:GOTO320
365 D=C:T=H:G=G+8
370 X=H:Y=G:AT=FNAT(0):IFAT=12 AND G=S1 AND H=T1 AND B=1 THEN PLAYM4$:GOSUB655:B
=0:S=100:GOTO360
375 IFAT=9THENS=100:PLAYM3$:GOTO360
380 IFAT=26THENGOSUB600:GOTO320
385 IFAT=19THENGOSUB680:GOTO745
390 IFG>160THENX=H:Y=G-8:P$="R":GOSUB100:Y=Y+8:GET(X,Y)-(X+9,Y+7),UU,G:P$="L":GO
SUB100:M=0:NH=NM-1:PLAYM7$:PUT(X,Y)-(X+9,Y+7),UU,PSET:GOTO320
395 IFH>10ANDH<230 AND G<144 THEN H=H+10*(2-RND(3)):X=T-10:Y=D:GOSUB9:GET(H,G)-(
H+9,G+7),VV,G:PUT(H,G)-(H+9,G+7),QQ,PSET:GOTO320
400 P$="O":GOSUB96:P$="R":GOSUB92:GOTO320
410 IF(PEEK(340)=223) AND K=0 THEN480
415 IF(PEEK(340)=251) AND B=0THEN575
420 IF(PEEK(343)=247) AND YY=0 THEN540
425 RETURN
480 CR=3:GOSUB15:PLAYM1$:X=TS:Y=SS:AT=FNAT(0):IF AT=9 THEN525
485 IFAT=33THENGOSUB500:GOTO525
490 IFAT=20THENGOSUB505:GOTO530
495 GOSUB520:GOTO530
500 PUT(TS,SS)-(TS+9,SS+7),RR,PSET:GOSUB735:GOTO595
505 NH=NM-1:MD=MD+1:GOSUB735
510 IFS=0 OR S=50THEN PUT(TS,SS)-(TS+9,SS+7),RR,PSET
520 PUT(TS,SS)-(TS+9,SS+7),LL,PSET:PLAYM6$:RETURN
525 T=0:T=1:PLAYM5$:CR=2:GOSUB15:RETURN
530 CR=2:GOSUB15
535 PUT(TS,SS)-(TS+9,SS+7),RR,PSET:RETURN
540 CR=3:GOSUB16:PLAYM1$:X=TS:Y=SS:AT=FNAT(0):IFAT=9THEN560
545 IFAT=33THENGOSUB500:GOTO560
550 IFAT=20THENGOSUB505:GOTO565
555 GOSUB520:GOTO565
560 PLAYM1$:CR=2:GOTO16
565 CR=2:GOSUB16:GOTO535
575 COLOR 1:LINE(125,152)-(5+TS,SS+8),PSET:PLAYM1$
580 X=TS:Y=SS:IFFNAT(0)=9 THENPLAYM4$:GOSUB585:GOTO660
585 Z=20^20:COLOR2:LINE(125,152)-(5+TS,SS+8),PSET:RETURN
590
595 NH=NM-1:MD=MD+1
600 FORP=1TO7:IFE(P)=50 THENE(P)=SS:F(P)=TS:PUT(TS,SS)-(TS+9,SS+7),BB,PSET:RETUR
NELSENEXTP:RETURN
615 FORP=1TO7:IFE(P)=G AND F(P)=H THEN E(P)=50:RETURNELSENEXTP:RETURN
625 COLOR 2:LINE(125,152)-(5+T1,S1+8),PSET:P$="R":GOSUB90:PLAYM3$
630 T1=T1+10*(T1>120)-10*(T1<120):S1=S1-8*(S1<144)
645 IFS1=144 AND T1=120 THENB=0:NP=NP-1:P$=P$+1:RETURN
650 B=1:P$="T":GOSUB90
655 COLOR1:LINE(125,152)-(5+T1,S1+8),PSET:Z=20^20:COLOR2:LINE(125,152)-(5+T1,S1+
8),PSET:RETURN
660 B=1:P$="R":GOSUB98:P$="T":GOSUB98:GOSUB615:S1=SS:T1=TS
665 FORP=1TO7:IFE(P)=S1 AND F(P)=T1 THENE(P)=50:RETURNELSENEXTP:RETURN
670 G=G-8:P$="R":GOSUB96:G=G+8:P$="L":GOSUB96:G=G+8:GOSUB96:PLAYM5$:G=G-8:PLAYM4
:IFP=60THENK=1
685 IFH=180THENYY=1
690 IFK=1 AND YY=1 THEN760
695 M=0:NH=NM-1:Z=20^20:P$="R":GOSUB96:G=G+8:GOSUB96:G=G-8:RETURN
700 O=0+1:IFD>7THENO=1
710 IFE(O)=50THENRETURN
715 P$="R":GOSUB94
720 F(O)=F(O)-10:IFF(O)<10THENF(O)=240
725 P$="B":GOTO94
730 IFSS=C AND TS=H THENM=0:RETURNELSEReturn

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Illustration: Peter Harris

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745 GOSUB40:AY=35:M$="PROJECTOR@DESTROYED":GOSUB61010:GOTO765
750 GOSUB40:GOTO765
760 GOSUB40:AY=35:M$="LASERS@DESTROYED":GOSUB61010
765 PLAYM2$:AY=60:M$="POLYPS SAFE"+STR$(P5)+"@"+"MISSILES@DESTROYED"+STR$(M0):GO
SUB61010
770 AY=100:M$="PRESS P FOR@ANOTHER GAME":GOSUB61010
780 IFFS=0THENM$="KEEP UP@THE PRACTICE"ELSEIFFS<3 THENM$="BETTER LUCK@NEXT TIME"
ELSEIFFS<6 THENM$="YOU NEED@MORE PRACTICE"ELSEIFFS=6THENM$="VERY GOOD"ELSEH$="BR
ILLIANT PLAY"
790 AY=130:GOSUB61010
800 FORT=17020000:IFINKEY$<"P"THENNEXT:AU=1ELSEAU=0
810 PMODE3,5:SCREEN1,0:GOTO200
2000 GOTO61100
4999 'GETS
5000 POKE65495,0
5001 CLS:PRINT@260,"PLEASE WAIT ....."
5002 AR$=""+"CHR$(8)+CHR$(9)+CHR$(10)+CHR$(94)
5005 DIMAA(6),BB(2),CC(12),DD(6),II(4),KK(2),LL(2),MM(2),NN(2),OO(2),PP(2),QQ(2)
,RR(2),TT(2),UU(2),E(7),F(7),VV(2)
5006 '9=6=POLYP, 19=5=PROJ, 26=4=LASER, 20=3=MISS/TY, 33=2=WITH POLY, 12=7=CAUGHT
POLYP
5007 DEF FNAT(O)=8*PPOINT(X+2,Y+2)+PPOINT(X+4,Y+2)
5010 PMODE3,1:PCLS2:GOSUB6000:PMODE3,1
5015 NA$="AA":GOSUB20:GOSUB5100:GET(0,0)-(25,7),AA,G
5020 GOSUB5100:GET(0,0)-(9,7),BB,G
5030 GOSUB5100:GET(0,0)-(29,15),CC,G
5040 GOSUB5100:GET(0,0)-(9,23),DD,G
5045 GOSUB5100:GET(0,0)-(9,15),II,G
5055 GOSUB5100:GET(0,0)-(9,7),KK,G
5060 GOSUB5100:GET(0,0)-(9,7),LL,G
5065 GOSUB5100:GET(0,0)-(9,7),MM,G
5070 GOSUB5100:GET(0,0)-(9,7),NN,G
5075 GOSUB5100:GET(0,0)-(9,7),OO,G
5080 GOSUB5100:GET(0,0)-(9,7),PP,G
5085 GOSUB5100:GET(0,0)-(9,7),TT,G:PCLS2:GET(0,0)-(9,7),RR,G
5086 GOSUB5100:GET(0,0)-(9,7),TT,G:PCLS2:GET(0,0)-(9,7),RR,G
5087 M1$="V10L25004AC":M2$="V10L25003ABCACBACBC":M3$="V30L15001FA":M4$="V15L15
001F03AB"
5088 M5$="V31L255T25503A":M6$="L200:01V31BV28AV24GV20FV16DV10CEV5C":M7$="L20001V
31BV30FV29DV28GV27EV25CV23FV21CV19GV17BV15:L21002DEV13CEV11FEV9DV7AV5BV3EV1G"
5094 RETURN
5100 PCLS2:READI:J=0:K=0
5105 READF:IFF=0THENRETURN
5110 POKE&H600+K+J*32,F
5115 K=K+1:IFK=I THENJ=J+1:K=0
5116 GOTO5105
5120 '*****
5125 DATA AA
5130 DATA4,85,85,85,85,85,127,85,85,85,93,85,85,117,93,85,213,117,93,85,213,
85,93,85,85,85,93,0
5134 'BBB - POLYP
5135 DATA 2,85,85,93,85,64,85,124,85,124,85,64,85,93,0
5139 'CDE - PROJECTOR
5140 DATA4,85,170,169,85,89,105,150,149,89,105,121,169,170,170,170,169,106,17
0,170,169,90,170,170,101,86,10,85,149,85,169,106,85,85,170,169,85,86,170,170,8
5,86,89,150,85,89,101,101,149,89,101,101,149,101,165,105,101,101,85,85,101,16
9,85,85,169,0
5144 'DDD SIDE SCANNER
5145 DATA 2,85,85,85,85,85,85,93,85,93,85,85,85,85,85,85,85,117,85,117,
85,127,85,127,85,117,85,117,85,85,85,85,85,85,85,93,85,93,0
5149 'III - LASER
5150 DATA 2,102,85,102,85,166,149,170,149,170,149,170,149,153,149,106,85,89,85,
89,85,89,85,106,85,102,85,149,149,149,149,0
5159 'KKK
5160 DATA2,85,85,85,85,85,85,93,85,93,0
5164 'LLL-EXPLODE
5165 DATA 2,213,213,119,85,85,85,93,213,221,85,85,85,119,85,213,213,0
5169 'MMM-MISSILE
5170 DATA2,85,85,85,85,93,85,93,85,119,0
5174 'NNN -TYFG
5175 DATA2,85,85,85,85,221,213,221,213,255,213,255,213,221,213,213,0
5179 'OOO - PIRATE

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▶▶▶▶▶

◁◁ The PRINT statements in the line below include special control characters, which do not come in the printer listing.

LINE 550 AND 1040 - (CONTROL COMMA)
 LINE 1000 - (CONTROL I)
 LINE 1000 - (CONTROL A B C)
 LINE 1000 - (CONTROL D E F)
 LINE 1010 - (CONTROL G)
 LINE 1010 - (CONTROL G)
 LINE 1010 - (CONTROL H)
 LINE 1010 - (CONTROL H)
 LINE 1010 - (CONTROL COMMA)
 LINE 1050 - 4 * (CONTROL COMMA)
 LINE 160 - AS INTRIGUE LINE 160
 LINE 1055 - AS INTRIGUE LINE 830
 LINE 3050 - (CONTROL M)
 LINE 3050 - (CONTROL COMMA)
 LINE 5060 - 6 * (CONTROL COMMA)
 LINE 6030 - (CONTROL COMMA)
 LINE 7040 - (CONTROL COMMA)
 LINE 11200 - (CONTROL COMMA)

10 REM PIRATES AND POLYPS - C&UG 1983
 20 REM Author P. Norris
 30 REM Atari conversion by S. Goodwin
 100 DIM A%(1024):RT=PEEK(106):POKE 106,R
 108:GRAPHICS 18:POKE 16,64:POKE 53774,64
 110 PMB=(RT-8)*256:CHB=PMB+1024:UTAB=PEE
 K(134)+PEEK(135)*256:ATAB=PEEK(140)+PEEK
 (141)*256
 120 OFFS=PMB-ATAB:HI=INT(OFFS/256):LO=OF
 FS-HI*256:POKE UTAB+2,LO:POKE UTAB+3,HI
 140 FOR J=708 TO J+3:READ A:POKE J,A:NEX
 T J
 150 DATA 56,234,120,74
 170 FOR J=CHB+512 TO J+119:READ A:POKE J
 ,A:NEXT J
 172 DATA 20,85,85,81,85,81,65,20
 174 DATA 3,124,192,255,127,63,31,7
 176 DATA 255,122,249,255,255,255,240,193
 178 DATA 192,62,3,255,242,196,56,224
 180 DATA 0,1,3,7,12,25,32,248
 182 DATA 255,255,165,66,129,195,0,0
 184 DATA 0,128,192,224,48,24,4,31
 186 DATA 60,126,255,253,245,249,98,60
 188 DATA 24,24,60,60,90,102,129,0
 190 DATA 0,0,8,8,8,24,24,52
 192 DATA 60,60,60,60,60,60,195,195
 194 DATA 195,195,60,60,60,60,60,60
 196 DATA 255,255,195,195,255,255,60,60
 198 DATA 153,66,0,153,153,0,66,153
 200 DATA 60,255,255,243,255,243,195,60
 210 POSITION 6,1: ? #6;"Pirates":POSITION
 8,3: ? #6;"and":POSITION 6,5: ? #6;"POLYP
 S!"
 215 POSITION N,8: ? #6;"COPYRIGHT C&UG 19
 83":OPEN #1,4,N,"K":POSITION 3,11: ? #6;
 "press any key":GET #1,A
 220 POSITION N,N: ? #6;"": ? #6;" *** ca
 ution ***": ? #6: ? #6;"THESE INSTRUCTIONS
 ": ? #6;"HON'T BE AVAILABLE"



230 ? #6;"DURING THE GAME AND": ? #6;"IT
 MAY BE WISE TO": ? #6;"MAKE A FEW NOTES"
 : ? #6;
 240 ? #6;" press any key":GET #1,A:GO
 PHICS N:POKE 106,RT-8:POKE 710,208:POKE
 756,RT-4:POKE 82,N:POKE 752,1: ?
 245 POKE 16,64:POKE 53774,64
 250 ? : ? " OBJECTIVE: To stop pirate v
 ssels from destroying your base and steal
 ing the sun polyps."
 260 ? : ? "If both your laser bases are
 it, or the projector is hit then the game
 is lost." : ?
 270 ? "When all the sun polyps are coll
 ected or stolen then the game finishes
 ": ?
 300 ? "In order to collect a polyp or de
 stroy a pirate vessel, you must use the
 " :
 310 ? "Joystick to move the scanner on
 the appropriate target." : ?
 320 ? "Press the trigger to fire the la



```

press the space bar to operate th
"projector,"?
330 ? "When a pirate vessel lands on a p
olyp, the polyp will be captured. The P
irate will change to RED and proceed";
340 ? "towards":? "the top of the scree
n":? "You will lose the polyp if the
pirate reaches the top.":? :?
350 ? " press any key ":GET #1,A:?" )
360 ? "The polyp may be saved by destroy
the pirate with laser fire.":? :?
370 ? "polyp then the polyp will be draw
into the projector automatically.
380 ? "Laser fire destroys pirates but"
390 ? " has no":? "effect on the polyps.
400 ? "The projector has no effect again
st pirate vessels.":? :? :? " COMPUT
ER AND VIDEO GAMES hope that you "
410 DLIST=PEEK(560)+PEEK(561)*256:SCRN=F
EELDLIST+4)+PEEK(DLIST+5)*256:FOR J=DLI
ST+6 TO J+17:POKE J,J
420 NEXT J:POKE J,34:POKE J+1,34:POKE J+
2,34:POKE J+4,6
430 COL=184:COLS=120:POKE 704,COL:POKE
706,4:POKE 707,4:POKE 708,234:POKE 1791
7:POKE 709,74
440 A$(1)=" ":A$(1024)=" ":A$(2)=A$:BONU
S=300
450 FOR J=854 TO J+9:READ A:POKE PMB+J,A
NEXT J:FOR J=988 TO J+3:READ A:POKE PMB
+N,A:NEXT J:J=1536
460 DATA 12,12,30,30,63,63,127,127,255,2
55,128,128,192,192
470 READ A:IF A<0-1 THEN POKE J,A:J=J+1:
GOTO 800
480 DATA 216,238,194,2,238,195,2,206,255
5,208,17,169,7,141,255,6,173,194,2,24,1
5,9,141,194,2,141,195,2,76,98,228,-1
490 POKE 54279,RT-8:POKE 559,46:POKE 53
27,3:POSITION 0,23:?"score 0 bonus
700";
500 OST=15:K=3:NP=7:TS=19:T1=TS:SS=12:S
SS=DIM B$(6),E$(7):FOR A=1 TO 7:E
A=AI2:F(A)=INT(RND(0)*35+2)
510 POSITION F(A),E(A):?" ":NEXT A:TX=
22:TY=576

```

```

.055 DATA 24,38,60,24,24,36,24,24,60,36,
24,24
1000 FOR J=1 TO 6:READ A:B$(J,J)=CHR$(A)
NEXT J:A$(TY,TY+5)=B$
1005 DATA 126,66,66,66,66,126
1100 IF K=1 THEN H=INT(RND(N)*23+1):GOTO
1130
1120 H=INT(RND(N)*36+1)
1130 NP=0:S=N:M=1:G=19:I=INT(RND(N)*9+1)
:MY=733
1140 IF U<N THEN U=U-3:SOUND 3,N,8,U
1145 GOSUB 5000:PC=PC+1:GOSUB 6000
1150 IF PC>4 AND B=1 THEN GOSUB 7000:PC=
N
1160 IF PC>4 THEN PC=N
1170 IF NP=N THEN 3000
1180 IF M=N THEN 2000
1190 IF S=50 THEN 3000
1200 IF I=100 THEN 4000
1210 IF I=6 THEN S=50:A$(MY,MY+3)=M$;GO
TO 1950
1220 G=6-1:MY=MY-4:S=PEEK(SCRN+H+6*40):
IF S=64 AND G=S AND H=T AND B=1 THEN
3000
1230 IF S=64 THEN S=100:GOTO 9500
1240 IF G=18 THEN GOSUB 1400:GOTO 1950
1250 A$(MY+4,MY+7)=S$:A$(MY,MY+3)=M$;GO
TO 1950
1400 U=15:SOUND 3,N,8,U:A$(MY,MY+3)=M$;S
POKE 705,COL:MX=46+H*4:POKE 53249,MX:RE
TURN
1950 IF NP=N THEN 3000
2000 IF M=N THEN 1100
2010 GOSUB 5000:GOSUB 5500:POKE 764,255:
GOTO 1140
3000 G=6+1:MY=MY+4:A$(MY-4,MY-1)=S$
3005 IF H>1 AND H<36 AND G<18 THEN H=H+I
NT(RND(N)*3-1):MX=46+H*4:POKE 53249,MX
3010 S6=PEEK(SCRN+H+6*40):IF S6=64 AND G
=51 AND H=T1 AND B=1 THEN 3400
3020 IF S6=64 THEN S=100:GOTO 4100
3030 IF S6=71 THEN GOSUB 9000:GOTO 1950
3040 IF S6=73 OR (S6=64 AND S6=71) THEN
GOSUB 9000:GOTO 3020
3070 A$(MY,MY+3)=M$;GOTO 1950
3400 POKE 53250,N:POKE 53251,N:SOUND 1,N
,N,N:B=N:S=100:GOTO 4100

```

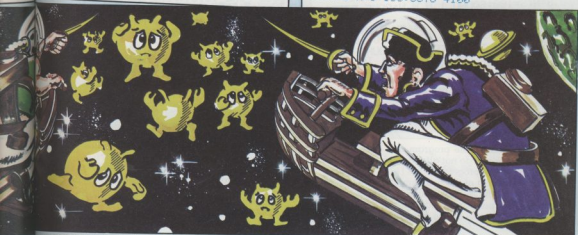


Illustration: Peter Harris

```

3500 POKE 53249,N:M=N:NM=NM-1:FOR J=1 TO
150 STEP 5: SOUND N,J,8,15-J/10:NEXT J:P
POSITION H,6:? " ":RETURN
4000 A$(MY,MY+3)=S$:G=6-1:IF G<1 THEN M=
N:NP=NP-1:NM=NM-1:POKE 53249,N:IF NP=N T
HEN 30000
4010 IF M=N THEN 1950
4020 MY=MY-4:A$(MY,MY+3)=M3$:GOTO 1950
4100 POSITION H,6:? " ":A$(MY-4,MY-1)=S$
:A$(MY,MY+3)=M3$:GOSUB 9600:GOTO 1950
5000 BC=BC+1:IF BC>4 THEN BC=N:IF BONUS>
N THEN BONUS=BONUS-1
5002 POSITION 6,23:? SC::POSITION 17,23:
? BONUS;" "
5005 ST=STICK(N):IF ST=10 OR ST=9 OR ST=
5 OR ST=6 THEN ST=0ST
5010 OST=ST:IF ST=15 THEN RETURN
5020 OY=TY:IF ST=7 THEN TS=TS+1:TX=TX+4:
IF TS>37 THEN TS=37:TX=TX-4
5030 IF ST=11 THEN TS=TS-1:TX=TX-4:IF TS
<1 THEN TS=1:TX=TX+4
5040 IF ST=14 THEN SS=SS-1:TY=TY-4:IF SS
<1 THEN SS=1:TY=TY+4
5050 IF ST=13 THEN SS=SS+1:TY=TY+4:IF SS
>18 THEN SS=18:TY=TY-4
5070 RETURN
5500 IF PEEK(764)=33 AND B=N THEN GOSUB
10000:RETURN
5510 IF STRIG(N)=N AND K=N THEN GOSUB 11
000
5520 RETURN
6000 O=O+1:IF O>7 THEN O=1
6010 IF E(O)=50 THEN RETURN
6020 POSITION F(O),E(O):? " ":F(O)=F(O)-
1:IF F(O)<1 THEN F(O)=37
6030 POSITION F(O),E(O):? " ":RETURN
7000 POSITION T1,S1:? " ":IF T1<19 THEN
T1=T1+1
7010 IF T1>19 THEN T1=T1-1
7020 S1=S1+1:IF S1>18 THEN S1=18
7030 IF S1=18 AND T1=19 THEN B=N:NP=NP-1
:NPC=NPC+1:POKE 53250,N:POKE 53251,N:SOU
ND 1,N,N,N:SC=SC+50:RETURN
7040 B=1:POSITION T1,S1:? " ":RETURN
9000 B=N:S=100:SOUND 1,N,N,N:POKE 53250,
N:POKE 53251,N:GOTO 9500
9500 POSITION H,6:? " ":A$(MY+4,MY+7)=S$
:A$(MY,MY+3)=M3$:GOSUB 9600:GOTO 1950
9600 FOR J=255 TO N STEP -25:SOUND N,J,1
4,15:NEXT J:POKE 705,56:FOR P=1 TO 7:IF
E(P)=6 AND F(P)=H THEN E(P)=50:P=8
9610 NEXT P:SOUND N,N,N,N:RETURN
9800 POKE 53249,N:A$(MY-4,MY-1)=S$:POSIT

```

```

ION H,6:? " ":IF H=10 THEN K=K-1
9810 IF H=28 THEN K=K-2
9812 BONUS=BONUS-100:IF BONUS<N THEN B
US=N
9815 FOR J=25 TO 220 STEP 2:SOUND N,J,1
5:SOUND 2,J,25,8,15:POKE 54277,RND(N)
5:NEXT J:POKE 54277,N
9820 SOUND N,N,N,N:SOUND 2,N,N,N:IF K=
THEN 30100
9830 M=N:NM=NM-1:POSITION H,6:? " ":POS
TION H,6+1:? " ":RETURN
10000 SOUND N,20,6,15:S6=PEEK(SCRN+TS+
*40):IF S6=64 THEN SOUND 1,200,6,12:60
8 10200:RETURN
10010 FOR J=1 TO 5:NEXT J:SOUND N,N,N,N
RETURN
10200 POKE 53250,121:POKE 53251,129:B=
S1=SS:T1=TS:FOR P=1 TO 7:IF E(P)=S1 AND
F(P)=T1 THEN E(P)=50:P=8
10210 NEXT P:SOUND N,N,N,N:RETURN
11000 FOR J=-14 TO 14 STEP 4:SOUND N,20
-J,10,15:NEXT J:S6=PEEK(SCRN+TS+SS*40)
11010 SOUND N,N,N,N:IF TS<37 OR SS<37 T
EN RETURN
11100 POKE 704,N:A=121:FOR J=1 TO 20:PO
E 705,RND(N)*255:SOUND N,A,8,15:IF A=12
THEN A=243:GOTO 11110
11102 A=121
11110 NEXT J:POKE 53249,N:SOUND N,N,N,N
NM=NM-1:M=N:MD=MD+1:POKE 704,COLS:SC=SC
10:IF A$(MY,MY+3)=M3$ THEN 11200
11120 A$(MY,MY+3)=S$:POKE SCRIN+TS+SS*40
56:RETURN
11200 FOR P=1 TO 7:IF E(P)=50 THEN E(P)=
SS:F(P)=TS:POSITION TS,SS:? " ":P=8
11210 NEXT P:A$(MY,MY+3)=S$:RETURN
30000 SC=SC+BONUS:GOSUB 30300:? #6,"
GAME FINISHED":GOTO 30400
30100 GOSUB 30300:? #6;"GAME OVER - "
#6;"Lasers destroyed":GOTO 30400
30200 GOSUB 30300:? #6;"GAME OVER - "
#6;"Projector destroyed":GOTO 30400
30300 FOR J=N TO 3:SOUND J,N,N,N:POKE 5
243,J,N:NEXT J:GRAPHICS 18:RESTORE 150
30305 POKE 16,64:POKE 53774,64:FOR J=70
TO J-3:READ A:POKE J,A:NEXT J:RETURN
30310 ? #6:? #6;" score ";SC:? #6
30320 ? #6;"Pirates blasted ";MD:? #6:
#6:RETURN
30400 GOSUB 30310:? #6;" PRESS START
"? #6;" TO PLAY AGAIN":POKE 764,255
30410 FOR J=1 TO 10:NEXT J:IF PEEK(532
)=7 THEN 30410
30420 RUN

```

Runs on a Vic-20 in 3.5K.

Converted by Paul Jay

Type in the first part of the program and save it before running. Make sure you do not alter anything, especially the "load" part of the program.

Save the second part of the program after the first and save it as "&POLYPS" in caps without a space.

When using the program, load and run the first part and leave the Play button on the cassette recorder down.

A lot of gibberish will appear on the screen which is

the machine code to be used in the second part of the program.

When the second part is loaded, the cursor should be flashing next to the word "RUN". Press the return button and the game will begin.

Do not clear the screen or change the display or the game will crash. The game runs on a standard Vic-20 with a joystick.


```

422 DATA208,6,140,78,3,142,10,144,173,79,3,201,25,176,9,238,79,3,238,11,144,76,1
46,3
423 DATA140,11,144,236,79,3,208,6,140,79,3,142,11,144,173,80,3,201,16,176,9,238,
,3,201
424 DATA206,12,144,76,176,3,140,12,144,236,80,3,208,6,140,80,3,142,12,144,173,81
,3,201
425 DATA64,176,28,238,81,3,173,81,3,201,22,208,7,169,176,141,13,144,240,25,201,4
3,208
426 DATA21,169,160,141,13,144,240,14,140,13,144,236,81,3,208,6,140,81,3,142,13,1
44,76
427 DATA191,234,169,0,141,14,144,120,169,191,141,20,3,169,234,141,21,3
428 DATA88,96,0,0,0,0,0,0,0,0,0,0,132,143,142,167,148,160,144,129,142,137,13
1,161
500 PRINT"LOAD"CHR$(34)"&POLYPS"CHR$(34)
510 PRINT"XXXXXXXXXXXXRUN"
520 POKE198,3:POKE632,19:POKE633,13:POKE634,13
530 NEW
READY.

```

VIC-20 continued

```

0 IFPEEK(193)<>66THENFORI=1TO191:POKE827+I,PEEK(7965+I):NEXT
5 POKE193,66
6 DIMP(7),L(7)
20 CLR:SYS828:D=888:E=847:SN=200:DU=10:GOSUB7000
100 POKE36879,13:POKE36878,(16*7)OR(PEEK(36878)AND15):POKE36869,255:SC=0
110 P=39:SH=40:SS=41:GU=45:R=10:BL=14:PU=12:BC=BL:C=30720:BD=1:CY=11:K=10:L0=811
9:PC=0
120 GC=2:DP=0:CP=0:Q=7:RESTORE:FORI=1TO7:READP(1),L(1):NEXT:PRINT"J"
130 D1=33:D2=34:D3=35:WH=0:L=0:M=0:B=0
140 G=7680:K1=37139:K2=37154:X=10:Y=19:T=32:O=1:U=37137:V=37152
150 DATA7723,7701,7754,7745,7808,7789,7841,7833,7886,7877,7937,7921,7949,7943
160 FORI=8142TO8163:A=INT(RND(1)*3)+42:POKEI,A:POKEI+C,R:NEXT
162 POKE8121,9:POKE8121+C,1:POKE8140,9:POKE8140+C,1
165 POKE8143,GU:POKE8143+C,9:POKE8162,GU:POKE8162+C,9
170 A=33:FORI=8129TO8131:POKEI,A:POKEI+C,CY:A=A+1:NEXT
180 A=36:FORI=8151TO8153:POKEI,A:POKEI+C,CY:A=A+1:NEXT
1000 IFQ=0ANDDP=0THEN1020
1010 GOSUB2000
1020 IFDP=0THENGOSUB3000
1040 M=B:A=INT(RND(1)*3)+O:ONAGOTO1050,1070,1080
1050 K=K-O:IFK<0THENK=0
1060 GOTO1080
1070 K=K+O:IFK>20THENK=20
1080 A=INT(RND(1)*2)+O:ONAGOTO1090,1110
1090 L=L+BD:IFL>20THENL=20:BD=-O
1100 IFL<0THENL=0:BD=0:IFBC=RTHENGOSUB1190
1110 B=22*L+K:WH=PEEK(G+B)
1120 IFWH=D1ORWH=D2ORWH=D3THENPOKEG+M,T:POKEG+B,SH:POKEG+B+C,BC:GOSUB9000:GOTO80
00
1130 IFWH=9THENGCGC=O
1140 IFWH=PANDBC=BLANDDP=0THENBC=R:BD=-O:DU=10:SN=222:D=948:E=849:GOSUB7000:GOSU
B1170
1150 POKEG+M,T:POKEG+M+C,O:POKEG+B,SH:POKEG+C+B,BC
1160 GOSUB4000:GOTO1000
1170 FORI=0TOO:IFP(1)=G+BTHENPC=I:POKEP(1),T:RETURN
1180 NEXT

```

```

1190 P(C)=P(Q):L(PC)=L(Q):Q=Q-0:IFQ=0THEN8000
1200 BC=BL:PC=0:RETURN
2000 N=INT(RND(1)*Q)+0:IFN=CPANDQ<1THEN2000
2012 IFN=PCTHEN2000
2015 IFQ=1ANDBC=ATHENRETURN
2020 POKEP(N),T:P(N)=P(N)-0:IFP(N)=L(N)THENP(N)=P(N)+22
2030 POKEP(N),P:POKEP(N)+C,PU:RETURN
3000 POKEJ,T:J=J+22:IFJ>LOTHENDP=0:SC=SC+PH*0:GOSUB6000:GOSUB3040:RETURN
3020 D=940:E=849:SN=200:DU=50:GOSUB7000:POKEJ,P:POKEJ+C,CY
3030 RETURN
3040 P(CP)=P(Q):L(CP)=L(Q):Q=Q-0:IFQ=0THEN8000
3050 CP=0:RETURN
4000 POKEK1,0:POKEK2,127:RESTORE:S=PEEK(U):S0=((SAND4)=0):S1=((SAND8)=0)
4020 S2=((SAND16)=0):F=((SAND32)=0):S=PEEK(V):S3=((SAND128)=0):POKEK2,255:POKEK1
,128
4030 W=Z
4040 IF62THENX=X-0:IFX<0THENX=0
4050 IF63THENX=X+0:IFX>21THENX=21
4060 IF60THENY=Y-0:IFY<1THENY=0
4070 IF61THENY=Y+0:IFY>19THENY=19
4080 Z=22*Y+X
4085 IFF=-0THENGOSUB5000
4090 POKEG+W,T:POKEG+Z,SS:POKEG+C+Z,0:RETURN
5000 FORI=0TO0:IFP(I)=0+2THENIFDP=0THENP(I)=DP=0:CP=I:RETURN
5010 NEXT:IFG+Z<G+BOGCC=0THENRETURN
5020 D=858:E=846:DU=40:SN=200:GOSUB7000:D=888:E=847:GOSUB7000:D=918:E=848:GOSUB7
000
5030 IFBC=BLTHENSC=SC+GC*0:PH=PH+1:GOTO5050
5040 SC=SC+GC*Q*2:PH=PH+2:PC=0
5050 GOSUB6000:BC=BL:BD=0:L=0:K=10:B=0:RETURN
6000 PRINT"*****SCORE *****"
7000 POKED,DU:POKE53,SN:POKEE,SN:RETURN
8000 PRINT"YOUR SCORE WAS":SC
8005 IFSC>HITHENHI=SC
8007 PRINT"THE HIGHEST IS ",HI
8008 PRINT"WOULD YOU LIKE ANOTHER GAME?"
8010 FORI=1TO10:GETG$:NEXT
8020 GETG$:IFG$=""THEN8020
8030 IFG$="Y"THEN100
8040 END
9000 HH=36864:VV=36865:FORTT=1TO50:GOSUB7000:HM=INT(RND(1)*2+10):VM=INT(RND(1)*8
+32)
9010 POKEVV,VM:POKEHH,HM:FORDD=1TO25:NEXT:NEXT:POKEHH,12:POKEVV,38:RETURN
READY.

```



Illustration: Peter Berni

CREATING GAMES

The inner workings of a software house

Software houses have had to learn their trade fast.

Two years ago, games programming companies as successful as Bug-Byte, Psion, Quicksilver and Imagine were unthinkable. Now games software is big business and new software houses are appearing all the time. We asked one of these, Visions, to tell us about their operation, so if you send away a tape for consideration, you'll understand just what processes it has to go through before it finds its way into the local W.H. Smiths.

Visions was set up in West London last summer by four people with a background in different areas of the software industry: Sean de'Bray was previously involved in commercial software consultancy; Roz Evitts comes from a public relations company which specialised in computer clients; John Burnham is the production director with a background in the audio industry and Martin Parmler is the financial director.

They pooled their talents to become Visions and start producing games for the home market.

Any software house is ultimately only as good as its programs so Visions treat theirs with special care.

The company aims to have six programmers employed when it gets into full swing, but like many other games companies, a lot of the ideas are sent in by freelance writers.

These are tested and evaluated quickly. The accompanying informa-

tion is read and the game cassette loaded on the required machine. Some games have an initial impact and the testers take to them straight away, others only become compulsive when they have been played with for a while.

Any that show promise are looked at by other members of the Visions' staff — four people usually test each game and give their comments, and they're all keen games players.

As soon as it gets the go-ahead, the team start working on whether the game needs tidying up or if there are a few areas which need improvement. The programmer is contacted straight away and invited down for a chat — young programmers are asked to bring a parent. The schedule of the game is already being drawn up, with thought going into a possible release date, when adverts would need to be put into magazines and what sort of artwork will be used in presenting the cassette.

On meeting the programmer, the suggested improvements are talked over and Visions try to discover if he is capable of doing these himself or whether he will need help from the programmers on staff. Does he need any additional equipment to make the improvements, are there any books which might help.

At the end of the meeting, he is offered a contract. The company pays 25% royalties but will also pay an advance if extra work is involved.

Visions' designer asks an artist in to look at the game and work on some ideas for the cassette inlay.

Presentation of the cassette is an important factor in how it sells so a great deal of thought goes into the name of the game, the images which appear on the cassette packaging

and how it will be represented in advertisements.

If the formula is right, the company can end up with a top-selling cassette, finding its way into 10-15,000 homes.

HOW

Visions put great stress on the way a freelance programmer presents his games cassette.

The more information they have, the quicker Visions' testing and production team can go into action.

Professional presentation can tell long before the games tester even loads the cassette. One obvious requirement is to make sure you include your name and address and a phone number if you have one.

Explain what machine your game works for, whether it needs memory expansion, joysticks or any special cartridge to run.

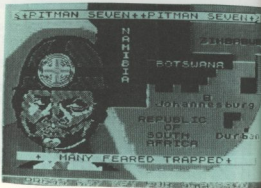
Give its title, a brief write up on what kind of game it is and a rundown on the key controls. Full instructions should be included.

Is it written in Basic or Machine Code and what other machines might it be possible to transfer the game to?

Have you sent the game anywhere else and if so, is it on offer?

Before the tape goes in the post, check that it loads, try it on more than one tape machine. Now it's time to include some personal details. Give your age if you're still at school, add a biography of your computer experience and (if you think it will help) where the idea for the game came from.

Your prize game may still not find its way into the shops but now you have at least given it every chance.



MAL FUNCTION

T. HITCH

SNAG JNR

SCREAMING
FOUL UP

ZAP!

KROW!

I DON'T THINK THOSE
BOYS CAN TAKE MUCH
MORE. GO AND GET
FOUL-UP SNAG. WE'LL
PUT A STOP TO THIS

LATER

RUMBLE!

HMM! THAT'S THE
FASTEST HE'S
EVER STOPPED
A GAME.

YOU RELEASED SCREAMING
FOUL-UP. WHATEVER
POSSESSED YOU?



...THE MICRO'S
STILL
WORKING!

COME QUICKLY. IT'S
FOUL UP HE'S ERR.
... HE'S ERR!

URGLE!!

WHAT
HAPPENED?



OUR PROGRAMMER MAKES
A DISCOVERY!

BOY! THAT'S
WHAT I CALL A
TOUGH GAME
FEATURE!



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Presentation on the

Simon Hunt talks colour and sound

The tips on Atari presentation come courtesy of English Software.

Simon Hunt is the programmer giving you the benefit of his knowledge of the Atari machine. He is responsible for the jewel in English Software's collection, Diamonds.

Diamonds is written in purely machine code, but Simon has reproduced the title sequence in Basic and uses it to illustrate a number of techniques which you can adapt to your own programs.

Variables used in the listing REGKGD, REGDIAM, REGKGL, REGNAME, REGTEXT. These define the addresses of the colour registers corresponding to the colour of the background, diamonds, author's name, and the other text.

COLORGD, COLDIAM, COLNAME, COLTEXT: define the actual colour value.

LABEL is used to read some of the Data: I have appended labels to the ends of data statements to show what the data is.

RAMTOP defines the register which points to the top of usable memory.

CHBAS defines the register which points to the beginning of the character set table.

SETP points to the area of memory 1K below RAMTOP: this is where my new character set will be placed. SETMEM is the actual value of the first memory location in the new character set table.

CHAR controls the input of the 44 re-defined characters.

BYTE controls the input of the eight bytes which define each character.

DATA is used to read in the data values. It is just a general variable.

DLIST defines the memory location at the start of the display list.

DLIST, DLIST+1 define the registers which tell the Atari where to find the display list.

DELAY is used to control the speed at which the colours change.

Figure 1: Bit values of a byte

Figure 2: Character set table

Character 0		Graphics Mode	Data value	Scan Lines
Byte 0	Setmem	2	7+64	16
Byte 1	Setmem +1	-	112	8
Byte 2	Setmem +2	-	112	16
Byte 3	Setmem +3	2	7	8
Byte 4	Setmem +4	-	112	16
Byte 5	Setmem +5	-	112	16
Byte 6	Setmem +6	1	6	8
Byte 7	Setmem +7	1	6	8
Character 1		1	6	8
Byte 0	-	-	112	16
Byte 1	-	-	112	16
Byte 2	-	2	7	8

THE VESPOZIAN AFFAIR

An adventure
set on a spacecraft
soaring between star systems
By Keith Campbell

RUNS ON A DRAGON IN 32K.

```

1 CLS:PRINT:PRINT:PRINT"          THE VESPOZIAN AFFAIR":PRINT:PRINT:PRINT"          A COMP
  UTER & VIDEO GAMES":PRINT"          ADVENTURE BY":PRINT" KEITH CAMPBELL AND TERR
  Y PRATT":FORI=0T03000:NEXT
2 CLS:PRINT"YOU PLAY THE ROLE OF D'TAAN,          SCIENTIFIC OFFICER ABOARD THE          SPAC
  ESHIP VESPOZIAN."
3 PRINT"YOUR (PRIVATE) MISSION IS TO          OBLITERATE THE BLOODLINE          STARGATE
  . ALL THE INFORMATION YOU NEED TO DO THIS IS AVAILABLE WITHIN THE GAME!"
4 PRINT:PRINT" USE 1-WORD OR 2-WORD COMMANDS":PRINT:PRINT"          GOOD LUCK ~ D'TA
  AN":FORI=0T08000:NEXT
5 CLEAR500
10 DIML$(14),L1$(14),E$(14),D$(14),O$(18),P(18),C(18),NB$(11),Q$(4),V$(8)
20 FORI=0T014:READL$(I),L1$(I),E$(I),D$(I):NEXT:FORI=0T018:READO$(I),P(I),C(I):N
EXT:FORI=0T011:READNB$(I):NEXT
50 PN=1:CT=0:JM=-1:PV=6:CY=143:PF=600:CD=2:AT$="A THOUGHT IS FRAMED IN YOUR MIND
":ST=1:PI=999:SF=1
60 WY$="TAKDROLIFL00EXAOPEUNLLOCCLOWEAREMINSRAIPREKILSLE"
70 WGS$="PORTAFORAFRTUP DOWOUTBUNSHUNOREARSWESBULDOOCRYVES"
80 WDS$="PSFAUD0BTNEWLRCV"
90 WNS$="SHUDEVPOLCRARSBSPACONCYLTONBEZGRAMAC005001002003004KEYROCDISPILDOOBUTARO
  SCRBSUSHE"
95 O$(1)="COMPUTER & VIDEO GAMES":O$(2)="WELCOMES YOU TO":O$(3)="THE SEVENTH EMP
  IRE ADVENTURE"
100 IFPN=5ANDPL=9THENRT=5ELSEIFPN<5THENRT=0
101 IFF(7)=90R(P(6)=9ANDC(6) > 2)THENSF=0
102 IFPV=3ANDP(2)=99THENP(2)=4
103 IFPN=3ANDC(8)=-4ANDC(4)<>5THENGOSUB35300:GOTO60050
104 CT=CT+1:IFC(6)=3ANDP(6)=9THENC(6)=4:PF=PF+2000:O$(3)="NEW FUEL LOADED":O$(6)
  ="METAL CONTAINER"
105 IFST=1THENJE=JE+1:IFJE>24THENJE=JE-25:PV=PV+JM:CLS:IFPV=CD THENST=2:PF=PF-10
0:PRINT"VESPOZIAN IN ";NB$(PV):" ORBIT":PLAY"L404V31AP75AP75L3A#":ELSEPRINT"VESPO
  ZIAN PASSING ";NB$(PV):PLAY"L404V31AP75AP75L3A#"
106 IFR=5THENP(9)=99:P(10)=6ELSEIFPN=5ANDRT=0THENP(9)=5:P(10)=5
107 IFCT>200THENTCT=1:CY=CY+1
108 IFCD=PV THENST=2
109 IFST=2THENDO$="ORBITING"ELSEO$="BEARING ON"
110 IFPN=9ANDC(4)<>4THENGOSUB35300:GOTO60010
120 IFPV=2ANDPN=4ANDP(12)=99THENP(12)=4
125 IFF(2)=13THENP(2)=88:PI=CY:O$(3)="POLYPS VANISH INTO THE ROCKS"
126 IFCY>PI+19 THENP(18)=13:PI=CY
129 IFF(1)=PN AND(PN=6ORPN=13)ANDP(18)<>13ORP(6)<>13)THENO$(3)="SWITCH STARTS M
  OTOR, DRILL":O$(4)="ENGAGES AND SPRAYS DUST!"
130 IFF(18)=13ANDP(1)=13ANDP(6)=13ANDC(6)=2THENP(18)=88:O$(6)="FUEL CONTAINER":C
  (6)=3:O$(3)="SWITCH STARTS MOTOR, DRILL":O$(4)="ENGAGES AND FILLS CONTAINER"
135 IFF(17)=55THENC(3)=3
140 IFC(4) > 3AND(PN=10RPN=60RPN=70RPN=10)THENIG=IG+1ELSEIG=0
145 IFIG > 0THENP(10)=PN:IFIG=7THENGOSUB35300:GOTO60070
146 IFF(10)=PN THENIFRND(6)=3THENO$(1)="EVER GET THE FEELING . . .?"
150 IFF(4)<>PN ANDP(4)<>55ANDP(4)<>11ANDP(4)<>66THENP(4)=88:O$(1)="ST

```

The Seventh Empire is dominated by the Bloodline race, a tyrannical regime headed by hereditary clones. They alone control the 'greenhouse effect' planets, those rich in stellar energy — energy especially useful for interstellar travel. And interstellar travel means power.

Bloodline Scientists have developed a theory that "greenhouse effect" planets are created by "Polyps" — small organisms that are the nomads of space. The theory holds that if a new generation of Polyps form on a dead planet, their activity turns it, over a period of time, into a greenhouse effect planet. The time scale for this process is estimated at 20 years.

The Bloodline Empire have therefore chartered a space exploration vessel, The Vespozian, skippered by Captain Bezel from the Pirate Empire, to investigate the Funus solar system to test their theories.

On board The Vespozian is D'taan, a female human scientist, charged with the responsibility of conducting this investigation. D'taan is ambitious, and would risk a lot to gain control of a source of stellar energy.

However, to do this, she would need to break free from the influence of the Bloodline Empire, by obliterating the Bloodline Stargate currently stationed in the Funus System, and to which the



D'Taan felt sure someone was watching her

Illustration: David Page

Vespozian is now returning at the end of its voyage.

Nearing the end of its journey, Vespozian is low on fuel. Each change of course uses 100 picaroth of fuel, and Vespozian's only weapon, a laser cannon, uses a massive 1000 Picaroth each time it is fired.

D'taan is uneasy. She is convinced that there is a Bloodline spy aboard.

In "The Vespozian Affair", you become the cautious D'taan.

To play this Adventure, enter 1-word or 2-word commands when prompted by "WHAT NOW?". Bear in mind that to move to a different location you must always use the verb "GO" followed by a direction or location. And be careful — I think you're being followed...

SEVENTH EMPIRE ADVENTURE NOTES

1. Scenario

Aboard the Vespozian heading through the Funus system into orbit around Gyrate, and there to dock with the Bloodline Stargate, also in orbit around Gyrate. As the game starts, the Vespozian is between the orbits of Great Bulgen and Bulgen.

2. Mission

To obliterate the Stargate using the Vespozian's laser weapon. As D'taan, you must do this covertly, avoiding suspicion by the Bloodline spy Grakta, and without the knowledge or help from Captain Bezel.

3. Game Description

This follows the usual Adventure format, but breaks out this mode for control of the ship, and view of the navigational details.

3.1 Navigational Details

These are reported on a screen in the Navigation Room. The screen is not visible from "Adventure" mode, but a "LOOK AROUND" clue mentions the screen. "LOOK SCREEN" will display it. Details given are:—

CLONE-YEAR ZONETIME
CURRENT BEARING OR ORBIT OF VESPOZIAN
ETA AT BEARING (IN ZONETIME)
FUEL LEVEL (IN PICAROTH)
LASER OPEARTIVE OR INOPERATIVE

● Note that 1 clone-year = 200 Zonetime. 1 Zonetimes = 1 player's command.

At start, the fuel level is 600 picaroth. Picaroth is the energy unit, and usable as follows:—

To change ship's course — 100pR

To freeze crew cryogenically — 10pR/Clone-year

To fire laser — 1000pR

3.2 Control of Vespozian

Normally from Bridge, where LOOK AROUND clue says "Button marked Thought Control". Pressing button is impossible, as player is restrained by Machen, the pilot.

A metal lined gangway near the door of the suit room, reveals via "LOOK AROUND" a hidden bulkhead which can then be entered. It contains a duplicate control. No button is visible, so the player must deduce there is a button from his look at the Bridge. Pressing the button puts the game in "control mode" eg:

A THOUGHT IS FRAMED IN YOUR MIND
HEADING, CRYOGEN, LASER or END?

To change the ship's direction, a touch of the "H" key will cause the current location and heading to be displayed, and a request for new destination.

The reply is validated against known planets and stars, and against the current fuel level. If OK, the course correction is applied and confirmed, and the fuel decreased by 100pR.

As the ship passes each planet, between moves, the screen is cleared and:

"VESPOZIAN PASSING say ROTH"

DDD

DRAGON CONTINUED

```

RANGE FEELING . . "ELSEIFP(5)<>PN ANDP(5)<>55ANDP(5)<>88ANDP(5)<>11ANDP(5)<>66THE
NP(5)=88:Q(1)="ODD - I THOUGHT . . "
160 IF(3)=2ANDP(17) <> 55ANDP(17) <> 99THENP(17)=88:Q(1)="FUNNY - SOMETHING'S
GONE . . ":C(17)=3
170 IFP(10)=1ANDPN=1ANDK1=14THENGOSUB35300:GOTO60000
175 IFPN=60RPN=70RPN=100RPN=1THENIFRND(3)=2THENP(10)=PN ELSEP(10)=88
180 IFP(17)=55ANDPN <> 11ANDPN <> 10ANDP(17) > 2 THENGOSUB35300:GOTO60100
185 IF(0)=3ANDPN <> 1ANDPN <> 2THENGOSUB35300:GOTO60110
200 FORI=1TOLEN(E$(PN))
210 IFMID$(E$(PN),I,1)="P"THENEX$=EX$+"PORT."
220 IFMID$(E$(PN),I,1)="S"THENEX$=EX$+"S' BOARD."
230 IFMID$(E$(PN),I,1)="F"THENEX$=EX$+"FR'D."
240 IFMID$(E$(PN),I,1)="A"THENEX$=EX$+"AFT."
250 IFMID$(E$(PN),I,1)="U"THENEX$=EX$+"UP."
260 IFMID$(E$(PN),I,1)="D"THENEX$=EX$+"DOWN."
270 IFMID$(E$(PN),I,1)="O"THENEX$=EX$+"OUT."
280 NEXT
290 II=0:V$(II)="VISIBLE: ":FORI=0TO18:IFP(I)=PN THENOS$=OS$(I)ELSENEXT:GOTO330
310 IFLEN(V$(II))>LEN(OS$) < 29THENV$(II)=V$(II)+OS$+". ":OS$="":ELSEII=II+1:GOTO
310
320 NEXT
330 CLS:PRINT"I AM ";L$(PN):PRINTL$(PN):PRINTSTRING$(32,131);:IFLEN(EX$) > 0THE
NPRINT"EXITS: ";EX$
340 IFLEN(V$(0)) > 9THENPRINTV$(0)
345 FORI=1TO8:IFV$(I) <> ""THENPRINTV$(I)
350 NEXT
360 PRINTSTRING$(32,131);:IFA$(0)=""THENPRINT"----->YOU SAID ";A$
365 PRINT:FORI=1TO4:IFQ$(I)<>""THENPRINTQ$(I)
370 NEXT
380 PRINT:PRINT"----->WHAT NOW";
390 PL=PN:FORI=0TO4:V$(I)="":Q$(I)="":NEXT:A1$="":A2$="":A3$="":A4$="":EX$="":J
PUTA$
400 IFLEN(A$) < 3THEN40000ELSEA2$=LEFT$(A$,3)
405 IFA2$="INV"THEN40000ELSEIFA2$="WAI"THEN50000ELSEIFC2$="QUI"THEN61500ELSEIFA2$
"HEL"THEN60000ELSEIFA2$="SLE"THEN10000
410 J=0:FORI=1TOLEN(A$):IFMID$(A$,I,1)=" " THENJ=1
420 NEXT:IFJ=0THEN40110ELSEA1$=LEFT$(A$,J-1):A3$=RIGHT$(A$,LEN(A$)-J):A4$=LEFT$
A3$,3)
430 IFA1$="GO"ORA2$="GET"THEN1000
440 X$=WV$:Y$=A2$:GOSUB35000:IFJ=0THENQ$(2)="I DON'T KNOW HOW TO "+A1$:GOTO1000
SEK1=(J-1)/3+1
450 X$=WV$:Y$=A4$:GOSUB35000
460 IFJ=0THENQ$(2)="WHAT IS A "+A3$+"?":GOTO1000
470 K2=(J-1)/3
490 ONK1 GOTO2000,3000,7000,8000,8000,9000,10000,11000,12000,13000,14000,15000
000,16000,17000
1000 X$=WV$:Y$=A4$:GOSUB35000:IFJ=0THEN40010ELSEX$=E$(PN):Y$=MID$(WD$(J-1)/3+
1):GOSUB35000:IFJ=0THEN40010ELSEPN=VAL(MID$(D$(PN),(J-1)*2+1,2)):GOTO40020
2000 IFK2=19THEN40030ELSEIFK2 > 18THEN40070ELSEIFP(K2)=55THEN40040ELSEIFP(K2)<
N THEN40050ELSEIFC(K2)=2THEN40000ELSEIFC(K2)=1THEN40060ELSEIFP(9)=PN THEN400
2010 IFP(K2)=70R(K2)=6AND(C(6)=3)>ANDP(8) <> 55THENQ$(2)="TOO HOT TO HANDLE":GOTO10
ELSEIFIN > 3THENQ$(2)="I AM OVERLOADED ALREADY!":GOTO100ELSEIN=IN+1:P(K2)=55:G
040020
3000 IFK2 > 18THEN40070ELSEIFP(K2) <> 55THEN40070ELSEIFK2=1ANDPN <> 8ANDPN <
3)THENGOSUB35300:GOTO60060ELSEIN=IN-1:IFPN=14THENP(K2)=66:Q(3)="SLIPPED IT UN
R. PILLON"ELSEP(K2)=PN
3010 GOTO40020
4000 Q(1)="I AM CARRYING: ":IFIN=0THENQ$(2)="NOTHING":GOTO100ELSEJ=1:FORI=0TO
4010 IFP(I)=55THENIFLEN(Q$(J))+LEN(Q$(I))>29THENJ=J+1:IFJ=5THENI=18:NEXT:GOTO
ELSEGOTO4010ELSEQ$(J)=Q$(J)+Q$(I)+". "
4020 NEXT:GOTO100
5000 CT=CT+15:IFST=1THENJE=JE+15
5010 GOTO40020
6000 Q(2)="ALWAYS LOOK AROUND AND":Q(3)="EXAMINE THINGS. TRY WORDS":Q(4)="L
E INSERT, LIFT, WAIT . . ":GOTO100

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7000 IFK2<20ORPN<14THEN40000ELSE0#(2)="NOTHING !" :FORI=0TO18:IFC(1)=66THENP(1)
  *14:0#(2)="IT WAS STILL THERE!"
7010 NEXT I:GOTO100
8000 IFK2<23THEN9010ELSEIFPN=7THEN0#(2)="I SEE BUTTON MARKED":0#(3)="-THINK CON
  TROL-":GOTO100ELSEIFPN=10ANDLEN(E#(10))=2THEN0#(10)=E#(10)+"L":0#(2)="WOW!":L1#(
  10)=L1#(10)+" AND HIDDEN BULKHEAD":GOTO100
8005 IFPN=9ANDE#(9)="S"THEN0#(9)="SC":P(3)=9:0#(2)="AHA!":GOTO100ELSEIFPN=6THENG
  0#(2)="COURSE DATA ON SCREEN":GOTO100
8007 IFPN=2THENIFC(0)=3THEN0#(3)="INNER DOOR OPEN":0#(4)="OUTER DOOR CLOSED":GO
  TO40020ELSEIFC(0)=4THEN0#(3)="INNER DOOR CLOSED":0#(4)="OUTER DOOR OPEN":GOTO40
  0010 IFK2=19THEN40030ELSEIFK2=1THENIFP(1)<>55ANDP(1)<>PN THEN40030ELSE0#(2)="IT
  HAS HOLLOW CYLINDRICAL CUTTER":0#(3)="AND PRESSURE-SENSITIVE SWITCH":GOTO100
8015 IF(PN=2ORPN=1)ANDK2=22THEN0#(2)="SIGN -AIRLOCK CONTROL-":GOTO100
8020 IFK2=17ANDK2=11THENIFP(K2)<>55THEN40070ELSEON K2-11GOTO8700,8710,8720,8730,
  8740
8025 IFK2=20ANDPN=14THEN0#(3)="LOOKS STRANGELY LUMPY . .":GOTO40020
8026 IFK2=24ANDPN=6THEN45000
8030 0#(3)="NOTHING SPECIAL":GOTO40020

```



You haven't seen the Bloodline disc have you?" grated Grakta

```

8700 0#(2)="LABEL -YUSES-":GOTO100
8710 0#(2)="LABEL -POLYPS-":GOTO100
8720 0#(2)="LABEL -FUNUS-":GOTO100
8730 0#(2)="LABEL -CONFIDENTIAL-":GOTO100
8740 0#(2)="LABEL -BLOODLINE-":GOTO100
9000 IFK2<21THEN40000ELSEIFPN<10THEN40050ELSEIFC(17)=2THEN0#(2)="LOCKED!":GOTO
  100ELSEIFC(17)=4THEN0#(2)="ALREADY OPEN!":GOTO100ELSEIFP(7)=10THEN60000
  9010 C(17)=4:E#(10)=E#(10)+"R":GOTO40020
10000 IFK2<21THEN40000ELSEIFPN<10THEN40050ELSEIFC(17)>2THEN40090ELSEIFP(17)<>5
  5THEN40060ELSEIFC(17)=3:GOTO40020
11000 IFK2<21THEN40000ELSEIFPN<10THEN40050ELSEIFC(17)<>4ORP(17)<>55THEN40060EL
  SEC(17)=2:GOTO40020
12000 IFK2<21THEN40000ELSEIFPN<10THEN40050ELSEIFC(17)<>4THEN40060ELSEIFC(3)=3:E#
  (10)=LEFT$(E#(10),3):GOTO40020
13000 IFK2<4ANDK2<5THEN40000ELSEIFP(K2)<>55THEN40070ELSEIFC(4)=K2 THEN0#(2)="W
  HAT'S THIS I'M WEARING THEN?":GOTO100ELSEIFC(4)>2THEN0#(2)="WEARING "+LEFT$(O#(C
  (4)),LEN(O#(C(4))-7):GOTO100ELSEIFC(4)=K2:0#(K2)=O#(K2)+" (WORN)":GOTO40020
14000 IF(K2<4ANDK2<5)ORC(4)=2THEN40080ELSEIFC(4)=2:0#(K2)=LEFT$(O#(K2),LEN(O#(K2)
  )-7):GOTO40020
15000 IFK2=19THEN40030ELSEIFK2=12ORK2=16THEN40000ELSEIFP(K2)<>55THEN40070ELSEIFP
  (K2)=6THEN0#(2)="NO COMPUTER TO TAKE IT":GOTO100
15005 IFP(10)=6ANDK2=11ANDK2=17THENGOSUB35300:GOTO60090
15010 CLS3:PRINTO#(K2); SPINS IN IT'S DRIVE . .:PLAY"L101A":PLAY"05L100F#":CLS
  ON K2-11GOTO15050,15100,15200,15250,15400
15050 PRINT"-YUSES SYSTEM-":PRINT"STAR SYSTEM ADJACENT":PRINT"TO FUNUS. HAS 3 PL
  ANETS":PRINTN#(11); " - BALL OF FIRE":PRINTN#(9); " - INHABITED BY MINING":
  PRINT" COLONY, NO FINDS"
15060 PRINTN#(8); " - REMOTE DEAD PLANET":GOTO15500
15100 PRINT"-POLYPS-":PRINT"FREQUENT GALAXY IN MILLIONS":PRINT"AROUND ENERGY-RIC
  H PLANETS.":PRINT"REGENERATE EVERY 20 YEARS.":PRINT"ACTIVE POLYPS CAN TURN DEAD"
  PRINT"PLANET INTO GREENHOUSE-EFFECT":PRINT"PLANET, RICH IN STELLAR ENERGY"
15110 PRINT"AFTER 20 YEARS . .":GOTO15500
15200 PRINT"-FUNUS SYSTEM-":PRINT"STAR WITH 7 PLANETS.":PRINT"IN ORDER FROM FUNU
  S.":PRINTN#(1); " - (COLTEN ROCK)":PRINTN#(2); " - (UNINHABITED)":PRINTN#(3); "

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DDD

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- (GREENHOUSE EFFECT)":PRINTNB*(4);" - (INHABITED)"
15210 PRINTNB*(5):PRINTNB*(6);" - (ICY WASTE)":PRINTNB*(7);" - (LUMP OF ROCK)":G
0T015500
15250 PRINT"-CAPTAIN'S LOG-":PRINT"BEARING TO DOCK WITH BLOODLINE":PRINT"STARGAT
E IN CYRATES ORBIT-":PRINT"MISSION ACCOMPLISHED - D'TARN'S":PRINT"EXPERIMENTS CO
NFIRM POLYP":PRINT"THEORY. PITY BLOODLINE WILL":PRINT"BENEFIT!"
15300 PRINT"GLAD TO GET SHOT OF THIS":PRINT"CREW! SUSPECT GRAKTA IS":PRINT"BLOOD
LINE SPY. MACHEN,":PRINT"THE TIAITHEN LIZARD GIVES ME":PRINT"THE CREEPS. CAN'T G
ET RID OF":PRINT"HIM - ONLY PILOT ABOARD!":GOTO15500
15400 PRINT"-BLOODLINE-":PRINT"TYRANNICAL EMPIRE KEEPING":PRINT"CONTROL OF ENER
GY SUPPLIES":PRINT"FROM GREENHOUSE PLANETS -":PRINT"ON WHICH INTERSTELLAR TRAVEL
-PRINT"DEPENDS,":PRINT"STARGATE IN FUNUS SYSTEM"
15410 PRINT"CAN SUMMONS CRUISERS TO":PRINT"QUELL REBELS,":GOTO15500
15500 FORJ=0T07:PLAY"05L100F#":FORI=0T01000:NEXT:0*(2)="YOU REMOVE THE DISC
. ":GOTO100
16000 IFK<022THEN40020
16010 IFPN=7THENIFP(10)=7THEN60000ELSE0*(2)="MACHEN, THE LIZARD PILOT":0*(3)="RE
STRAINS YOU":GOTO100
16020 IFPN<12THEN16400ELSEIFPF=0THEN60020ELSEGOSUB35100
16030 PRINT"HEADING, CRYOGEN, LASER, OR END"
16040 PLAY"05L255V31F":Z$=INKEY$:IFZ$="H"THEN16100ELSEIFZ$="C"THEN16200ELSEIFZ$
"L"THEN16300ELSEIFZ$="E"THEN40020ELSE16040
16100 J=0:GOSUB35100:PRINT"CURRENTLY ";0*(2);" ";NB*(CD):INPUT"NEW DESTINATION",A
AA$:FORI=0T011:IFAA$=NB*(1)THENJ=1
16105 NEXT:IFJ=0THENPRINT:PRINTAA$;" NOT ON DATABASE":FORI=0T0200:NEXT:GOTO160
0
16110 IFJ=CD THEN16020ELSEIFJ>PV THENJM=1ELSEJM=-1
16120 ST=1:JE=0:CD=J:PF=PF-100:PRINT"COURSE CORRECTION APPLIED":PRINT"NEW
BEARING: ";NB*(CD):PRINT"FUEL: ";PF;" PICAROTH":GOSUB35200:IFPF<1THEN60020
ELSE16020
16200 GOSUB35100:PRINT:PRINT"CRYOGENIC CONTROL":PRINT"ENERGY TO FREEZE CREW - 10
PR-CY":PRINT:INPUT"HOW MANY CLONE-YEARS FREEZE",AA$:IFVAL(AA$)*10>PF THENPRINT
PRINT"FUEL DEFICIENCY."PRINT"ITERLOCK OVERRIDE":PRINT"* OPERATION ABORTED *":GOS
UB35200:GOTO160
16210 PF=PF-10*VAL(AA$):CY=CY+VAL(AA$):PRINT"STAND BY":GOSUB35200:GOSUB35300:PA
14:0*(2)="YAWN. . ":GOTO100
16300 GOSUB35100:PRINT"LASER CONTROL":PRINT
16305 PRINT:INPUT"TARGET ===>",AA$:IFAA$="STARGATE"THEN16320ELSEJ=0:FORI=0T011:
FN*(I)=AA$ THENJ=I:I=11:NEXTELSENEXT
16310 IFJ=0THENPRINTAA$;" NOT ON DATABASE":GOSUB35200:GOTO16020
16320 PRINT"TARGETED ON ";AA$:PRINT"POWER LOADING. . ":FORI=0T05000:NEXT:IFPF<1
00THENPRINT"FUEL DEFICIENCY"ELSEIFJ=PV OR(AA$="STARGATE"ANDPV=2)THEN16330ELSEPA
INTAA$;" OUT OF RANGE"
16325 PRINT"COMPUTER OVERRIDE":PRINT"* OPERATION ABORTED *":GOSUB35200:GOTO160
16330 GOSUB35300:FORI=0T010:NEXT:GOSUB35300:FORI=0T010:NEXT:GOSUB35300:FORI=0T0
0:NEXT:IFAA$<>"STARGATE"THEN60030ELSE60040
16400 IFPN=1THEN16000
16410 IFPN=2THEN16000ELSEIFPN<3THEN40050
16420 GOSUB35100:INPUT" 'DESTINATION' OR 'END' ",AA$:IFAA$="VESPOZIAN"THE
IFP(0)=2THENPRINT"AT VESPOZIAN":PRINT"* OPERATION ABORTED *":GOSUB35200:GOTO100
LSEPRINT"IN FLIGHT VESPOZIAN":GOSUB35200:PRINT"DOCKING":GOSUB35200:P(0)=2:0*(3)
"2*":GOTO16420
16425 IFLEF*(AA$,1)>="E"THEN40020
16430 J=0:FORI=0T011:IFAA$=NB*(I)THENJ=1
16440 NEXT:IFJ=0THENPRINTAA$;" NOT ON DATABASE":GOSUB35200:GOTO100
16450 IFJ<PV THENPRINTAA$;" OUT OF RANGE":GOSUB35200:GOTO100
16550 IFST=1THENPRINT"VESPOZIAN NOT IN ";AA$;" ORBIT":PRINT"* OPERATION BORTED
":GOSUB35200:GOTO100
16560 IFJ<8THENPRINT"CONDITIONS ON ";AA$:PRINT"NOT SUITABLE FOR SHUTTLE":PRINT
LANDING":PRINT"* OPERATION ABORTED *":GOSUB35200:GOTO100
16565 IF0(0)<-4THENPRINT"SHUTTLE BAY DOORS CLOSED":GOSUB35200:PRINT"* OPERATI
ABORTED *":GOSUB35200:GOTO100
16570 PRINT"HEADING - ";AA$:GOSUB35200:PRINT"LANDING ON ";AA$:P(0)=8:0*(3)="8*
GOSUB35200:GOTO100
16600 IFPN=1THENIF0(0)>-2THEN0*(0)=-3:L1*(1)="BLUE BUTTON BY OPEN BULKHEAD":E*(
)="PFL":GOTO40020ELSEIF0(0)>-2THEN0*(0)=-2:L1*(1)="BLUE BUTTON BY CLOSED BULKHEA

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E#(1)="FF":GOTO40020
16510 IFPN=2ANDC(0)=-3THENC(0)=-4:E#(2)="OT":D#(2)="4#3#":Q#(3)="INNER DOOR CLOS
E#(0#(4)="OUTER DOOR OPENS":GOTO40020
16520 IFPN=2ANDC(0)=-4THENC(0)=-3:E#(2)="TP":D#(2)="3#1#":Q#(3)="OUTER DOOR CLOS
E#(0#(4)="INNER DOOR OPENS":GOTO40020
16700 GOTO40050
17000 Q#(2)="TOO RISKY!":GOTO100
18000 Q#(2)="I'M NOT TIRED!":GOTO100
35000 J=0:FORI=1TOLEN(X#)STEPLEN(Y#):IFY#MID#(X#,I,LEN(Y#)) THENJ=I:I=LEN(X#)
35010 NEXT:RETURN
35100 PLAY"":CLS:PLAY"05G#L255V30":PRINTAT#:PRINT:RETURN
35200 FORI=0TO4000:NEXT:RETURN
35300 FORI=0TO100:CLS:PLAY"05L255AV30":CLS5:PLAY"01L255AV30":NEXT:RETURN
40000 Q#(2)="IMPOSSIBLE!":GOTO100
40010 Q#(2)="I CAN'T GO "+A2#:GOTO100
40020 Q#(2)="OK":GOTO100
40030 Q#(2)="REFERENCE DISC BY NUMBER":GOTO100
40040 Q#(2)="I'M ALREADY ACRRYIG IT!":GOTO100
40050 Q#(2)="I DON'T SEE IT HERE":GOTO100
40060 Q#(2)="I CAN'T - YET!":GOTO100
40070 Q#(2)="I'M NOT CARRYING IT!":GOTO100
40080 Q#(2)="YOU MUST BE JOKING!":GOTO100
40090 Q#(2)="OK - NOTHING HAPPENS":GOTO100
40100 Q#(2)="CAP'N WINKS TO ME AND":Q#(3)="GLANCES AT GRAKTA":GOTO100
40110 Q#(2)="HUH?":GOTO100
45000 CLS:PRINT:PRINT"CLONE YEAR:","CY:":ZONETIME:;CT:PRINT:PRINTSTRING#(32,13
0):PRINT:PRINT"VESPOZIAN ",00#," ",TAB(20)NB#(CD)
45002 IFST=1THENPRINT"ETA:":CA=INT((CT+ABS(CD-PV)*25-JE)/200):CB=(CT+ABS(CD-PV)
J25-JE)-(CA#200):PRINTTAB(12)STR#(CA);",";RIGHT#(STR#(CB),LEN(STR#(CB))-1)
45005 PRINT"NEAREST BODY:":TAB(9)NB#(PV):IFPV=2THENPRINTTAB(9)"BLOODLINE STARGAT
E"
45010 PRINT"FUEL:":TAB(12)PF;":PICAROTH":PRINT"LASER:":IFPF<1000THENPRINTTAB(13
)"INOPERATIVE"ELSEPRINTTAB(13)"OPERATIVE"
45020 PRINT:PRINTSTRING#(32,131):PRINT:PRINT" THINK CONTROL REPORTING":PLAY"0
LIV1B":PLAY"01L1V1B":PLAY"01L1V1B":PLAY"01L1V1B":GOTO40020
50000 DATARE THE CREW'S QUARTERS,LINED WITH BUNKS,DSB,741#14,IN THE RESEARCH LAB. W
ITH,BLUE BUTTON BY CLOSED BULKHEAD,PF,01#24,IN THE SHUTTLE BAY,BLUE BUTTON ON W
ALL,P,14,IN A SHUTTLE,WITH -THINK CONTROL- BUTTON,0,24,OUTSIDE THE HULL,OF THE V
ESPOZIAN,V,2#
50010 DATIN THE CAPTAIN'S CABIN,,0C,64#9#,IN THE NAVIGATION AND,COMPUTER ROOM,AF
U,1474105#,ON THE BRIDGE,,AU,64#8#,ON YUSES FAR UNDER,AN INDIGO SKY,TE,3413,AT V
ESPOZIAN'S FUEL CORE,I CAN FEEL HEAT,S,105#
50020 DATIN A METAL GANGWAY WITH A,DOOR,PD,94#1211,IN A SUIT ROOM,,P,10,IN A S
ECRET CONTROL ROOM,WITH DUPLICATE CONTROLS,0,10,ON YUSES FAR,UNDER AN INDIGO SKY
HEW,13138#,IN MY BUNK - IT HAS CLEAN,SHEETS & LARGE PILLOW,U,0#
50030 DATAUTO-SHUTTLE,2,-2,STRANGE DEVICE,1,2,4POLYPS#,99,2,CRAWLWAY,99,-2,ASDE
STOS SUIT,11,2,SPACE SUIT,11,2,METAL CONTAINER,5,2,FUEL CYLINDER,9,2,INSULATED T
INGS,1,2,CAP'N BEZEL,5,-2,GRAKTA,6,-2,MACHEN,7,-2,DISC 005,6,2
50040 DATDISC 001,1,2,DISC 002,7,2,DISC 003,5,2,DISC 004,6,2,KEY,12,2,GLOWING R
OCK,99,-2
50050 DATAFUNUS,LITTLE FUNUS,GYRATES,ROTH,BILGEN,GREATER BILGEN,OUTER FUNUS,FAR
FUNUS,YUSES FAR,MID YUSES,YUSES HEAR,YUSES
60000 CLS:PRINT"GRAKTA, BLOODLINE SPY, BLASTS"PRINT"YOU WITH IS LASER":PRINT"YO
U ARE NOW A PILE OF YUSES DUST!":GOTO62000
60010 CLS:PRINT"AAAAH . . .!"PRINT"MENT INTO FUEL CORE WITHOUT":PRINT"PROTECTION
- SEARING HEAT . . .":GOTO62000
60020 CLS:PRINT"WITH NO FUEL, THE VESPOZIAN":PRINT"WANDERS AIMLESSLY OUT":PRINT"
OF CONTROL, LOST IN SPACE":GOTO62000
60030 CLS:PRINT"TOO CLOSE PROXIMITY":PRINT"THE VESPOZIAN IS RIPPED APART":PRINT"
BY THE EXPLOSION":GOTO62000
60040 CLS:PRINT"WHAAA!":PRINT"THE BLOODLINE STARGATE IS":PRINT"VAPOURISED. YOU HA
VE SUCCEEDED":PRINT"IN YOUR MISSION!":PRINT"CONGRATULATIONS!":GOTO62000
60050 CLS:PRINT"INNER DOOR CLOSSES":PRINT"AIR EVACUATED":PRINT"OUTER DOOR OPENS":
PRINT"NO SPACE SUIT!":PRINT"YOU PERISH, AND DRIFT OUT":PRINT"INTO SPACE . . .":G
OTO62000
60060 CLS:PRINT"PRESSURE SWITCH OPERATES":PRINT"DRILL ENGAGES AND BORES THROUGH"
PRINT"VESPOZIAN'S HULL,":IFC4=5THENPRINT"YOU DRIFT OFF INTO SPACE":PRINT"AND
PERISH WHEN YOUR":PRINT"OXYGEN RUNS OUT":GOTO62000
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60065 PRINT"YOU BURST APART WITH THE".PRINT"DEPRESSURISATION!".GOTO62000
60070 CLS:PRINT"WALKING AROUND IN".PRINT"IS HIGHLY SUSPICIOUS!".PRINT"
GRAKTA - BLOODLINE SPY - ":PRINT"SHOTS YOU!".GOTO62000
60080 CLS:PRINT"GRAKTA - BLOODLINE SPY - ":PRINT"KILLS YOU FOR TREACHERY AGAINST"
PRINT"THE BLOODLINE EMPIRE!".GOTO62000
60090 CLS:PRINT"GRAKTA VAPOURISES YOU ON":PRINT"SUSPICION OF SPYING BY":PRINT"KE"
TRIEVING COMPUTERISED DATA.".PRINT"YOU PERISH.".GOTO62000
60100 CLS:PRINT"GRAKTA NOTICES SUIT ROOM DOOR":PRINT"OPEN. FINDS KEY ON YOU AND"
PRINT"BLASTS YOU TOWARDS FUNUS".GOTO62000
60110 CLS:PRINT"GRAKTA NOTICES SHUTTLE BAY":PRINT"DOOR OPEN, AND SUSPECTS":PRINT
"LOT AGAINST BLOODLINE EMPIRE":PRINT"YOU ARE EJECTED IN THE":PRINT"SHUTTLE AND"
FOREVER LOST".PRINT"IN SPACE!".GOTO62000
61500 CLS:PRINT"YOU HAVE GIVEN UP!".PRINT"THE BLOODLINE WILL BE YOUR":PRINT"MAST"
ERS FOREVER!".GOTO62000
62000 PRINT:PRINT"YOUR ADVENTURE IS OVER":INPUT"ANOTHER GAME",A$:IF LEFT$(A$,1)=""
Y"THEN RUN ELSE END

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RUNS ON A 48K SPECTRUM CONVERTED BY RON POTKIN

The Spectrum version of The Vespozian Affair will auto RUN from line 7000. It can be stopped at any time by use of the BREAK key and to resume use SAVE "ADVENTURE" line 7000.

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0 BORDER 0: PAPER 0: INK 7: B
RIGHT 0: FLASH 0: CLS
10 DIM L$(15,25): FOR I=1 TO 1
5: READ L$(I): NEXT I
11 DIM B$(15,32): FOR I=1 TO 1
5: READ B$(I): NEXT I
12 DIM O$(19,15): FOR I=1 TO 1
9: READ O$(I): NEXT I
13 DIM R$(12,14): FOR I=1 TO 1
2: READ R$(I): NEXT I
14 DIM E$(15,4): FOR I=1 TO 15
: READ E$(I): NEXT I
15 DIM D$(15,4): FOR I=1 TO 15
: READ D$(I): NEXT I
16 DIM P(19): FOR I=1 TO 19: R
EAD P(I): NEXT I
17 DIM C(19): FOR I=1 TO 19: R
EAD C(I): NEXT I
18 LET P0=0: LET GR=0: DIM O$(
5,32): DIM U$(1,14)
19 LET P$="": LET G$="": LET H
$="": LET I$="": LET J$="":
20 LET K$="": LET L$="": LET M
$="": LET N$="": LET O$="":
21 LET K2=1
25 FOR I=1 TO 4: LET O$(I)=""
NEXT I
30 LET IN=0
50 LET JE=0: LET PN=2: LET PL=
PN: LET CT=0: LET JM=-1: LET PV=
6: LET CV=143: LET PF=600: LET C
D=2: LET K$="A THOUGHT IS FRAMED
IN YOUR MIND": LET ST=1: LET P1
=999: LET SF=1
60 LET T$="TAKDROLIFLOODEXHOPEU
NLLCOOLLOWEEMINRAIPRELISLE"
70 LET H$="PORTSTAFORAPUT DOWD
UTBUNGHUNORSHESBULDOCARVES"
80 LET P$="PSFADOBTEHLCRV"
90 LET T$="SHUDEVPLCARSHESBPAC
ONCYLTONBZGRAPAC005001002003004
KEYROCDISPLDOOBUTAROSCREUNSH"
100 IF PN=6 THEN IF PL=10 OR P
(10)=99 THEN LET P(10)=99: LET
P(11)=99: GO TO 103
102 LET P(10)=6: LET P(11)=6
103 IF P(8)=10 OR (P(7)=10 AND
C(7)=2) THEN LET SF=1: GO TO 10
5
104 LET SF=0
105 IF PV=4 AND P(3)=99 THEN L

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ET P(3)=5
106 IF PN=3 AND C(1)=4 AND C(5
)<5 THEN GO SUB 3530: GO TO 605
0
107 IF C(7)=3 AND P(7)=10 THEN
LET C(7)=4: LET PF=PF+2000: LET
O$(3)="NEW FUEL LOADED"
109 LET CT=CT+1: IF ST=1 THEN
LET JE=JE+1
109 IF JE<25 THEN GO TO 113
110 IF ST=1 THEN LET JE=JE+1
IF JE=24 THEN LET JE=0: LET PV=
PV+JM: IF PV=CD THEN GO TO 112
111 CLS: PRINT INK 2: BRIGHT
1:"VESPOZIAN PASSING ---": PRINT
: PRINT INK 3,R$(PV): PAUSE 80
GO TO 113
112 LET ST=2: LET PF=PF-100: CL
5: PRINT INK 2: BRIGHT 1:"VESP
OZIAN IN ---": PRINT: PRINT IN
K 3,R$(PV): ORBIT: PAUSE 80
113 IF CT=200 THEN LET CT=1: L
ET CV=CV+1
114 IF CD=PV THEN LET ST=2
115 IF ST=2 THEN LET W$="ORBIT
ING": GO TO 117
116 LET W$="BEARING ON"
117 IF PN=10 AND C(5)<5 THEN G
O TO 6010
118 IF PN=14 AND A$="GO NORTH"
THEN GO TO 6055
120 IF PV=3 AND PN=5 AND P(13)=
99 THEN LET P(13)=5
125 IF P(3)=14 THEN LET P(3)=8
0: LET P1=CV: LET O$(3)="POLYPS

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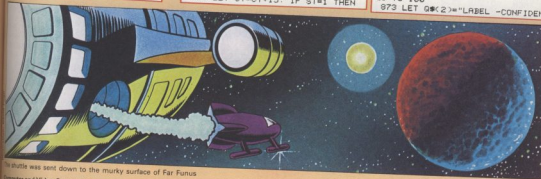
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VANISH INTO ROCKS"
126 IF CV>P1+19 THEN LET P
=14: LET P1=CV
129 IF P(2)=PN AND (PN=9 OR
14)=PN AND (P(19)<14 OR P(7)<10)
THEN LET O$(3)="SWITCH STAT
OTOR, DRILL": LET O$(4)="ENGAGE
AND SPRAYS DUST"
130 IF P(19)=14 AND P(2)=14:
P(7)=14 AND C(7)=2 THEN LET
19)=88: LET O$(7)="FUEL CONT
R": LET O$(8)="": LET C(7)=
ET O$(3)="SWITCH STARTS MOTR
RILL": LET O$(4)="ENGAGES AG
LLS CONTAINER"
135 IF P(18)=55 THEN LET O(
3
140 IF C(5)<4 AND C(5)<7 AND
N=2 OR PN=7 OR PN=8 OR PN=11)
EN LET IG=IG+1: GO TO 145
141 LET IG=0
145 IF IG=0 THEN LET P(11)=
IF IG=5 THEN GO SUB 3530: G
O 6070
146 GO TO 149: IF P(11)=PN TH
IF INT (RND(47)+1)/3 THEN LET
$(1)="EVER GET THE FEELING . . ."
150 IF P(5)<98 AND P(5)<90:
D P(5)<55 AND P(5)<12 AND P
<66 THEN LET P(5)=89: LET O
$="STRANGE FEELING . . .": GO TO
60
155 IF P(6)<PN AND P(6)<98:
D P(6)<55 AND P(6)<12 AND P
<66 THEN LET P(6)=89: LET O
$="STRANGE FEELING . . ."
160 IF C(4)=2 AND P(10)<55:
P(18)<66 AND P(18)<99 THEN
LET O$(18)=88: LET O$(1)="STRANG
E SOMETHING SEEMS MISSING": LET
(18)=9
170 IF P(11)=2 AND PN=2 AND P
14 THEN GO SUB 3530: GO TO 60
175 IF PN=7 OR PN=8 OR PN=11)
PN=2 THEN IF INT (RND(47)+1)/3
HEN LET P(11)=PN: GO TO 140
176 IF PN=6 AND PL<10 THEN G
O TO 180
177 LET P(11)=88
180 IF P(18)=55 AND C(18)=4:
P(11)=11 AND (PN=12 OR PN=11)
HEN GO SUB 3530: GO TO 6100
181 IF P(18)=55 AND C(18)=4:
P(11)=11 THEN GO SUB 3530: G
O TO 6100
185 IF C(1)=3 AND PN(2) AND P
(3) THEN GO SUB 3530: GO TO 610
200 OR I=1 TO LEN E$(PN)
210 IF E$(PN,X)=P THEN LET

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LET JE=JE+15
510 GO TO 4020
600 LET Q$C(2)="LOOK AROUND AND"
700 LET Q$C(3)="EXAMINE THINGS. TRY
WORDS": LET Q$C(4)="LIKE INSERT,
LIFT, WAIT ETC.": GO TO 100
700 IF K2>21 OR PN<15 THEN G
O TO 4000
701 LET Q$C(2)="NOTHING!": FOR I
=1 TO 19: IF P(1)=66 THEN LET
Q$C(1)=1: LET Q$C(2)="IT'S STILL TH
ERE!": GO TO 100
702 NEXT I: GO TO 100
900 IF K2<24 THEN GO TO 812
901 IF PN=8 THEN LET Q$C(2)="I
SEE BUTTON MARKED": LET Q$C(3)="I
THINK CONTROL-": GO TO 100
902 IF PN=11 AND E$C(11)<1 TO 3>
GO TO 100 THEN LET E$C(11)<1 TO 3>
="POL": LET Q$C(2)="NOW! A HIDDEN
JULKHEAD": GO TO 100
905 IF PN=10 AND E$C(10)="S "
THEN LET E$C(10)="SC "": LET P(4
)=10: LET Q$C(2)="RAH!": GO TO 10
906 IF PN=7 THEN LET Q$C(2)="CO
SE DATA ON SCREEN": GO TO 100
907 IF P(4)=3 THEN IF C(1)=3 TH
4 LET Q$C(3)="INNER DOOR OPEN."
700 LET Q$C(4)="OUTER DOOR CLOSED."
GO TO 4020
908 IF PN=3 THEN IF C(1)=4 TH
4 LET Q$C(3)="INNER DOOR CLOSED
700 LET Q$C(4)="OUTER DOOR OPEN":
GO TO 4020
12 IF K2=20 THEN GO TO 4030
13 IF K2=2 THEN IF P(2)<955 A
P(2)<XPN THEN GO TO 4030
14 IF K2=2 THEN LET Q$C(2)="IT
IS HOLLOW CYLINDRICAL CUTTER"
700 LET Q$C(3)="AND SENSITIVE PRESSU
RE SWITCH": GO TO 100
15 IF (PN=3 OR PN=2) AND K2=23
THEN LET Q$C(2)="SIGN -ARLOCK
CONTROL-": GO TO 100
18 IF K2<18 AND K2>12 THEN IF
K2<55 THEN GO TO 4070
19 IF K2<18 AND K2>12 THEN GO
TO 4030
20 IF K2=13 AND K2=14 AND K2=15 AND K2=16 AND K2=17 AND K2=18 AND K2=19 AND K2=20 AND K2=21 AND K2=22 AND K2=23 AND K2=24 AND K2=25 AND K2=26 AND K2=27 AND K2=28 AND K2=29 AND K2=30 AND K2=31 AND K2=32 AND K2=33 AND K2=34 AND K2=35 AND K2=36 AND K2=37 AND K2=38 AND K2=39 AND K2=40 AND K2=41 AND K2=42 AND K2=43 AND K2=44 AND K2=45 AND K2=46 AND K2=47 AND K2=48 AND K2=49 AND K2=50 AND K2=51 AND K2=52 AND K2=53 AND K2=54 AND K2=55 AND K2=56 AND K2=57 AND K2=58 AND K2=59 AND K2=60 AND K2=61 AND K2=62 AND K2=63 AND K2=64 AND K2=65 AND K2=66 AND K2=67 AND K2=68 AND K2=69 AND K2=70 AND K2=71 AND K2=72 AND K2=73 AND K2=74 AND K2=75 AND K2=76 AND K2=77 AND K2=78 AND K2=79 AND K2=80 AND K2=81 AND K2=82 AND K2=83 AND K2=84 AND K2=85 AND K2=86 AND K2=87 AND K2=88 AND K2=89 AND K2=90 AND K2=91 AND K2=92 AND K2=93 AND K2=94 AND K2=95 AND K2=96 AND K2=97 AND K2=98 AND K2=99 AND K2=100 AND K2=101 AND K2=102 AND K2=103 AND K2=104 AND K2=105 AND K2=106 AND K2=107 AND K2=108 AND K2=109 AND K2=110 AND K2=111 AND K2=112 AND K2=113 AND K2=114 AND K2=115 AND K2=116 AND K2=117 AND K2=118 AND K2=119 AND K2=120 AND K2=121 AND K2=122 AND K2=123 AND K2=124 AND K2=125 AND K2=126 AND K2=127 AND K2=128 AND K2=129 AND K2=130 AND K2=131 AND K2=132 AND K2=133 AND K2=134 AND K2=135 AND K2=136 AND K2=137 AND K2=138 AND K2=139 AND K2=140 AND K2=141 AND K2=142 AND K2=143 AND K2=144 AND K2=145 AND K2=146 AND K2=147 AND K2=148 AND K2=149 AND K2=150 AND K2=151 AND K2=152 AND K2=153 AND K2=154 AND K2=155 AND K2=156 AND K2=157 AND K2=158 AND K2=159 AND K2=160 AND K2=161 AND K2=162 AND K2=163 AND K2=164 AND K2=165 AND K2=166 AND K2=167 AND K2=168 AND K2=169 AND K2=170 AND K2=171 AND K2=172 AND K2=173 AND K2=174 AND K2=175 AND K2=176 AND K2=177 AND K2=178 AND K2=179 AND K2=180 AND K2=181 AND K2=182 AND K2=183 AND K2=184 AND K2=185 AND K2=186 AND K2=187 AND K2=188 AND K2=189 AND K2=190 AND K2=191 AND K2=192 AND K2=193 AND K2=194 AND K2=195 AND K2=196 AND K2=197 AND K2=198 AND K2=199 AND K2=200 AND K2=201 AND K2=202 AND K2=203 AND K2=204 AND K2=205 AND K2=206 AND K2=207 AND K2=208 AND K2=209 AND K2=210 AND K2=211 AND K2=212 AND K2=213 AND K2=214 AND K2=215 AND K2=216 AND K2=217 AND K2=218 AND K2=219 AND K2=220 AND K2=221 AND K2=222 AND K2=223 AND K2=224 AND K2=225 AND K2=226 AND K2=227 AND K2=228 AND K2=229 AND K2=230 AND K2=231 AND K2=232 AND K2=233 AND K2=234 AND K2=235 AND K2=236 AND K2=237 AND K2=238 AND K2=239 AND K2=240 AND K2=241 AND K2=242 AND K2=243 AND K2=244 AND K2=245 AND K2=246 AND K2=247 AND K2=248 AND K2=249 AND K2=250 AND K2=251 AND K2=252 AND K2=253 AND K2=254 AND K2=255 AND K2=256 AND K2=257 AND K2=258 AND K2=259 AND K2=260 AND K2=261 AND K2=262 AND K2=263 AND K2=264 AND K2=265 AND K2=266 AND K2=267 AND K2=268 AND K2=269 AND K2=270 AND K2=271 AND K2=272 AND K2=273 AND K2=274 AND K2=275 AND K2=276 AND K2=277 AND K2=278 AND K2=279 AND K2=280 AND K2=281 AND K2=282 AND K2=283 AND K2=284 AND K2=285 AND K2=286 AND K2=287 AND K2=288 AND K2=289 AND K2=290 AND K2=291 AND K2=292 AND K2=293 AND K2=294 AND K2=295 AND K2=296 AND K2=297 AND K2=298 AND K2=299 AND K2=300 AND K2=301 AND K2=302 AND K2=303 AND K2=304 AND K2=305 AND K2=306 AND K2=307 AND K2=308 AND K2=309 AND K2=310 AND K2=311 AND K2=312 AND K2=313 AND K2=314 AND K2=315 AND K2=316 AND K2=317 AND K2=318 AND K2=319 AND K2=320 AND K2=321 AND K2=322 AND K2=323 AND K2=324 AND K2=325 AND K2=326 AND K2=327 AND K2=328 AND K2=329 AND K2=330 AND K2=331 AND K2=332 AND K2=333 AND K2=334 AND K2=335 AND K2=336 AND K2=337 AND K2=338 AND K2=339 AND K2=340 AND K2=341 AND K2=342 AND K2=343 AND K2=344 AND K2=345 AND K2=346 AND K2=347 AND K2=348 AND K2=349 AND K2=350 AND K2=351 AND K2=352 AND K2=353 AND K2=354 AND K2=355 AND K2=356 AND K2=357 AND K2=358 AND K2=359 AND K2=360 AND K2=361 AND K2=362 AND K2=363 AND K2=364 AND K2=365 AND K2=366 AND K2=367 AND K2=368 AND K2=369 AND K2=370 AND K2=371 AND K2=372 AND K2=373 AND K2=374 AND K2=375 AND K2=376 AND K2=377 AND K2=378 AND K2=379 AND K2=380 AND K2=381 AND K2=382 AND K2=383 AND K2=384 AND K2=385 AND K2=386 AND K2=387 AND K2=388 AND K2=389 AND K2=390 AND K2=391 AND K2=392 AND K2=393 AND K2=394 AND K2=395 AND K2=396 AND K2=397 AND K2=398 AND K2=399 AND K2=400 AND K2=401 AND K2=402 AND K2=403 AND K2=404 AND K2=405 AND K2=406 AND K2=407 AND K2=408 AND K2=409 AND K2=410 AND K2=411 AND K2=412 AND K2=413 AND K2=414 AND K2=415 AND K2=416 AND K2=417 AND K2=418 AND K2=419 AND K2=420 AND K2=421 AND K2=422 AND K2=423 AND K2=424 AND K2=425 AND K2=426 AND K2=427 AND K2=428 AND K2=429 AND K2=430 AND K2=431 AND K2=432 AND K2=433 AND K2=434 AND K2=435 AND K2=436 AND K2=437 AND K2=438 AND K2=439 AND K2=440 AND K2=441 AND K2=442 AND K2=443 AND K2=444 AND K2=445 AND K2=446 AND K2=447 AND K2=448 AND K2=449 AND K2=450 AND K2=451 AND K2=452 AND K2=453 AND K2=454 AND K2=455 AND K2=456 AND K2=457 AND K2=458 AND K2=459 AND K2=460 AND K2=461 AND K2=462 AND K2=463 AND K2=464 AND K2=465 AND K2=466 AND K2=467 AND K2=468 AND K2=469 AND K2=470 AND K2=471 AND K2=472 AND K2=473 AND K2=474 AND K2=475 AND K2=476 AND K2=477 AND K2=478 AND K2=479 AND K2=480 AND K2=481 AND K2=482 AND K2=483 AND K2=484 AND K2=485 AND K2=486 AND K2=487 AND K2=488 AND K2=489 AND K2=490 AND K2=491 AND K2=492 AND K2=493 AND K2=494 AND K2=495 AND K2=496 AND K2=497 AND K2=498 AND K2=499 AND K2=500 AND K2=501 AND K2=502 AND K2=503 AND K2=504 AND K
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The shuttle was sent down to the murky surface of Far Funus

SPECTRUM CONTINUED

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1AL-1. GO TO 100
874 LET OMK2="LABEL -BLOODLINE
-- GO TO 100
900 IF K2<22 THEN GO TO 4000
901 IF PK1=11 THEN GO TO 4050
902 IF P(11)=11 AND PH=11 THEN
GO TO 6100
904 IF C(18)=2 THEN LET OMK2="
"LOCKED!" GO TO 100
905 IF C(18)=4 THEN LET OMK2="
"ALREADY OPEN" GO TO 100
906 IF P(8)=11 THEN GO TO 6000
910 LET C(18)=4: LET E(11)="PD
R" GO TO 4020
1000 IF K2<22 THEN GO TO 4000
1001 IF PK1=11 THEN GO TO 4050
1002 IF C(18)=2 THEN GO TO 4090
1003 IF P(18)<55 THEN GO TO 40
60
1004 LET C(18)=3: GO TO 4020
1100 IF K2<22 THEN GO TO 4000
1101 IF PK1=11 THEN GO TO 4050
1103 IF P(11)=11 AND PH=11 THEN
GO TO 6000
1104 IF C(18)<3 OR P(18)<55 TH
EN GO TO 4060
1106 LET C(18)=3: GO TO 4020
1200 IF K2<22 THEN GO TO 4000
1201 IF PK1=11 THEN GO TO 4050
1203 IF P(11)=11 AND PH=11 THEN
GO TO 6000
1204 IF C(18)<4 THEN GO TO 406
0
1206 LET C(18)=3: LET E(11)="E(
11" GO TO 4020
1300 IF K2<5 AND K2<6 THEN GO
TO 4000
1301 IF P(18)<55 THEN GO TO 40
70
1302 IF C(5)=K2 THEN LET OMK2="
"WHAT'S THIS I'M WEARING THEN?"
GO TO 100
1303 IF C(5)=4 THEN LET OMK2="
"WEARING "+O(5): GO TO 100
1304 LET C(5)=K2: LET OMK2="O(
K2)+" (WORN)": GO TO 4020
1400 IF (K2<5 AND K2<6) OR C(5
)=2 THEN GO TO 4090
1401 LET C(5)=2: LET OMK2="O(5)
" GO TO 4020
1500 IF K2=20 THEN GO TO 4030
1501 IF K2=19 OR K2=17 THEN GO
TO 4000
1502 IF P(18)<55 THEN GO TO 40
70
1503 IF PK1=7 THEN LET OMK2="H
0 COMPUTER TO TAKE IT" GO TO 10
0
1505 IF P(11)=7 AND K2=12 AND K2
<18 THEN GO SUB 3530: GO TO 609
0
1510 CLS: PRINT INK 2; BRIGHT
1; OMK2: PRINT INK 3; BRIGHT 1;
"SPINS IN ITS DRIVE . . ." FOR I
=1 TO 150: NEXT I: CLS: GO TO C
K2=13:1550:K2=14:1551:K2=15:
#1563:K2=16:#1565:K2=17:#1567
#1590 INK 5: PRINT "VUSSES SYSTEM
--" PRINT: PRINT "STAR SYSTEM A
DORCENT TO FUNUS": PRINT "IT HAS
3 PLANETS." PRINT PRINT R(1
1): PRINT " - BALL OF FIRE --": PR
INT: PRINT R(18): PRINT " - IN
HABITED BY MINING COLONY." PRINT
T "NO FINDS." PRINT
1560 PRINT R(9): PRINT " - REMO
TE DEAD PLANET --" GO TO 1569
1561 PRINT "POLYPS--" PRINT "FR
EQUENT GALAXY IN MILLIONS." PRIN
T "AROUND ENERGY RICH PLANETS."
PRINT "REGENERATE EVERY 200 YEA
S." PRINTACTIVE POLYPS CAN TU

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RN DEAD": PRINT "PLANET INTO GRE
ENHOUSE EFFECT": PRINT "PLANET,
RICH IN STELLAR ENERGY"
1562 PRINT "AFTER 20 YEARS . . ."
GO TO 1563
1563 PRINT " - FUNUS SYSTEM--" PRIN
T "STAR WITH 7 PLANETS." PRINT
"IN ORDER FROM FUNUS--" PRINT
PRINT R(2): " - MOLTEN ROCK" P
RINT R(3): " - UNINHABITED" PRIN
T R(4): " - GR'NHOUSE EFFECT" PR
INT R(5): " - INHABITED"
1564 PRINT R(6): PRINT R(7): P
RINT " - (BOTH ICY WASTES) --" P
RINT R(8): PRINT " - (CLUMP OF R
OCK) --" GO TO 1569
1565 PRINT " -CAPTAIN'S LOG--" PRIN
T "BEARING TO DOCK WITH BLOODLI
NE" PRINT "STARGATE IN GYRATES
ORBIT." PRINT "MISSION ACCOMPL
ISHED - D'TARR'S" PRINT "EXPERI
MENTS CONFIRM POLYPS" PRINT "THE
UNK. FLYING BLOODLINE WILL" PRINT
"BEHETIT!"
1566 PRINT "GLAD TO GET SHOT OF
THIS" PRINT "CREW, SUSPECT GRA
KTA IS" PRINT "BLOODLINE SPY, M
ACHEN." PRINT "THE THIRTEEN LIZ
ARD GIVES ME" PRINT "THE CREEPS
. CAN'T GET RID OF" PRINT "HIM
- THE ONLY PILOT ABOARD!" GO TO
1569
1567 PRINT " -BLOODLINE--" PRINT
"TYRANNICAL EMPIRE KEEPING" PRIN
T "CONTROL ON ENERGY SUPPLIES"
PRINT "FROM GREENHOUSE PLANETS
--" PRINT "ON WHICH INTERSTELLAR
TRAVEL" PRINT "DEPENDS" PRINT
"STARGATE IN FUNUS SYSTEM"
1568 PRINT "OUR SUMMON CRUISERS
TO" PRINT "QUELL REBELS."
1569 INK 7: FOR I=1 TO 1000: NEX
T I: LET Q=2: YOU REMOVE THE D
ISK -- GO TO 100
1600 IF K2<23 THEN GO TO 4020
1602 IF P(11)=2 AND PH=2 THEN G
O TO 6000
1603 IF PH=9 THEN IF P(11)=9 TH
EN GO TO 6000
1604 IF PH=9 THEN LET OMK2="MA
CHEN, THE LIZARD PILOT": LET OMK
3="RESTRAINS YOU": GO TO 100
1606 CLS: IF PK1=13 THEN GO TO
1601
1607 IF P(11)=7 THEN GO TO 6020
1608 GO SUB 3515
1609 PRINT INK 3; "HEADING (H)"
PRINT: PRINT INK 3; "CRYOGEN (
C)" PRINT: PRINT INK 4; "LASER
(L)" PRINT: PRINT INK 3; "END
OF INPUT (E)"
1612 LET V=INKEY$: IF V="H" TH
EN GO TO 1618
1613 IF V="C" THEN GO TO 1633
1614 IF V="L" THEN GO TO 1639
1615 IF V="E" THEN GO TO 4020
1616 GO TO 1612
1618 LET J=0: GO SUB 3515: PRINT
INK 2; BRIGHT 1; "CURRENTLY--"
PRINT INK 6; W: PRINT INK 6; R
(6): PRINT: PRINT INK 5; "NEW
DESTINATION?" PRINT: INPUT U(1)
1620 FOR I=1 TO 12: IF U(1)=R(
1) THEN LET J=1
1621 NEXT I: IF J=0 THEN PRINT
INK 2; BRIGHT 1; U(1); " NOT ON
DATABASE": GO SUB 3527: GO TO 1
606
1624 IF J=0 THEN GO TO 1606
1625 IF J=1 THEN LET J=1: GO
TO 1627
1626 LET J=1

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1627 INK 6: CLS: LET ST=1: LET
J=0: LET C=J: LET PF=PF-100: P
RINT: PRINT "COURSE CORRECTION
APPLIED" PRINT: PRINT "NEW DE
STINATION" PRINT R(6): PRINT "P
RINT "FUEL--" P(1) PICORATH" P
RINT 200
1628 INK 7: IF P(1) THEN GO TO
6020
1629 GO TO 1606
1633 GO SUB 3515: INK 5: PRINT:
PRINT "CRYOGENIC CONTROL" PRIN
T "ENERGY TO FREEZE CROW - 10 P
CV" PRINT: PRINT "HOW MANY C
ONE-YEARS FREEZE?" INPUT F: IF
VAL (F)>10:PF THEN PRINT "P
INT "FUEL DEFICIENCY." PRINT "I
NTERLOCK OVERRIDE" PRINT INK 2;
BRIGHT 1; " OPERATION ABORTED "
GO SUB 3525: INK 7: GO TO 16
6
1636 LET PF=PF-10:VAL (F): LET
C=C+VAL (F): PRINT INK 3; B
RIGHT 1; FLASH 1; "STAND BY" FOR
I=1 TO 100: NEXT I: GO SUB 3530
LET PH=15: LET OMK2="YAWN . .
" GO TO 100
1639 GO SUB 3515: PRINT INK 4;
LASER CONTROL": PRINT
1642 PRINT INK 4; "STARGATE?": PR
INT U(1): IF U(1)=7 THEN GO TO
" THEN GO TO 1646
1643 LET J=0: FOR I=1 TO 12: IF
R(1)=U(1) THEN LET J=1: LET I
=12: NEXT I
1644 NEXT I
1645 IF J=0 THEN PRINT INK 2;
BRIGHT 1; U(1); " NOT ON DATABASE
" GO SUB 3527: GO TO 1606
1646 PRINT INK 2; BRIGHT 1; "TA
GETED ON "U(1): FOR I=1 TO 15:
NEXT I: IF P(1000) THEN PRIN
T INK 3; FLASH 1; "FUEL DEFICIEN
CY"
1647 IF U(1)=7 THEN "STARGATE
" THEN GO TO 1650
1649 IF J=0 THEN PRINT "OUT
OF RANGE" GO TO 1652
1650 IF U(1)=7 THEN "STARGATE
" THEN GO TO 1652
1651 GO TO 1655
1652 PRINT: PRINT INK 2; BRIGHT
1; "COMPUTER OVERRIDE" PRINT: PR
INT INK 2; BRIGHT 1; " OPERATION
ABORTED " GO SUB 3525: GO TO 160
1655 GO SUB 3540: IF U(1)=7 TH
EN "STARGATE " THEN GO TO 6030
1656 GO TO 6040
1661 IF PH=2 THEN GO TO 1632
1664 IF PH=3 THEN GO TO 1632
1665 IF PH=4 THEN GO TO 4050
1667 GO SUB 3515: PRINT INK 3;
THINK "DESTINATION" OR "E"
INPUT U(1): IF U(1)=7 THEN PRIN
T " THEN IF P(1)=9 THEN PRIN
T INK 3; BRIGHT 1; "SHUTTLE AT
ESPIONAGE" PRINT: PRINT INK
GO SUB 3525: GO TO 100
1669 IF U(1)=7 THEN "VESPOZIN
" PRINT: PRINT INK 6; "IN FLIGHT R
EVEALING" GO SUB 3520: PRINT 3;
1; "DOCKING" GO SUB 3520: LET
I=9: LET U(4)=7: GO TO 1
00
1672 IF U(1)=7 THEN GO TO 1
4020
1675 LET J=0: FOR I=1 TO 12: IF
U(1)=R(1) THEN LET J=1
1679 NEXT I: IF J=0 THEN PRIN
T INK 2; BRIGHT 1; "NOT ON DB

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1681 GO SUB 3527: GO TO 100
1681 IF J<PV THEN PRINT INK 6
1681 "OUT OF RANGE": GO SUB 35
20 GO TO 100
1684 IF ST=1 THEN PRINT INK 3:
"VESPOZIAN NOT IN ": PRINT INK
5,UK(1): "ORBIT": PRINT : PRINT
INK 2, BRIGHT 1: " OPERATION AB
ORTED ": GO SUB 3525: GO TO 100
1687 INK 5: IF J<PV THEN PRINT
"CONDITIONS ON ",UK(1): PRINT "N
OT SUITABLE FOR SHUTTLE": PRINT
"LANDING": PRINT : PRINT INK 2,
BRIGHT 1: " OPERATION ABORTED 1
": GO SUB 3525: INK 7: GO TO 100
1690 IF C1<1<4 THEN PRINT INK
4,4:"SHUTTLE-BAY DOORS CLOSED":
GO SUB 3520: PRINT INK 2, BRIGHT
1: " OPERATION ABORTED 4 ": GO
SUB 3525: GO TO 100
1691 PRINT INK 3: "HERDING - ",U
K(1): GO SUB 3520: PRINT INK 5:
"UMED ON ",UK(1): LET PK(1)=9:
LET QK(1)=1 : GO SUB 3520: G
O TO 100
1692 IF PH=2 THEN IF C1<1=-2 TH
EN LET C1<1=3: LET UK(2)=2:"BLUE
BUTTON BY OPEN BULKHEAD": LET E
K(2)=PF: GO TO 4020
1693 IF PH=2 THEN IF C1<1=3 TH
EN LET C1<1=2: LET UK(2)=2:"BLUE
BUTTON BY CLOSED BULKHEAD": LET
UK(2)=PF : GO TO 4020
1694 IF PH=3 AND C1<1=3 THEN L
ET C1<1=4: LET UK(3)=OT : LE
T UK(3)=ED : LET UK(3)=INNER
DOOR CLOSERS: LET UK(4)=OUTER
DOOR OPENS: GO TO 4020
1695 IF PH=3 AND C1<1=4 THEN L
ET C1<1=3: LET UK(3)=TP : LE
T UK(3)=OB : LET UK(3)=OUTER
DOOR CLOSERS: LET UK(3)=INNER
DOOR OPENS: GO TO 4020
1696 GO TO 4050
1700 LET UK(2)="NO CHANCE-TOO RI
SKY": GO TO 100
1800 LET UK(2)="I'M NOT TIRED":
GO TO 100
2500 LET J=0: FOR I=1 TO LEN X$
STEP LEN Y$
2505 IF Y$=UK(I) TO I-1+LEN Y$ T
HEN LET J=1: LET I=LEN X$+3: RE
TURN
1910 NEXT I: RETURN
2515 CLS: PRINT INK 6,K$: PRINT
1000 RETURN
2520 FOR I=1 TO 300: NEXT I: RET
URN
2525 FOR O=1 TO 6: BEEP .1,7: BE
P .1,2: NEXT O: PAUSE 150: RETU
RN
2526 BEEP 3,20: RETURN
2527 FOR O=1 TO 10: BEEP .05,6:
BEEP .05,10: NEXT O: RETURN
2530 FOR I=1 TO 15: CLS: PAPER
A BORDER 0: PRINT : PAUSE 5: PA
PER 7: BORDER 7: PRINT : NEXT I:
PAPER 0: BORDER 0: INK 7: CLS:
RETURN
2540 FOR I=1 TO 10: CLS: PAPER
A BORDER 0: PRINT : PAUSE 5: PA
PER 2: BORDER 2: PRINT : NEXT I:
PAPER 0: BORDER 0: INK 7: CLS:
RETURN
2542 RETURN
2543 GO TO 4020
4000 LET UK(2)="IMPOSSIBLE!": GO
TO 100
4010 LET UK(2)="I CAN'T GO "+I$
GO TO 100
4020 LET UK(2)="OK": GO TO 100
4030 LET UK(2)="REFERENCE DISC B

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Y ITS NUMBER": GO TO 100
4040 LET UK(2)="I'M ALREADY CARR
YING IT": GO TO 100
4050 LET UK(2)="I DON'T SEE IT H
ERE": GO TO 100
4060 LET UK(2)="I CAN'T YET!": G
O TO 100
4070 LET UK(2)="I'M NOT CARRYING
IT": GO TO 100
4080 LET UK(2)="YOU MUST BE JOKI
NG!": GO TO 100
4090 LET UK(2)="OK-NOHING HAPPE
NS": GO TO 100
4100 LET UK(2)="CAP'N WINKS AT M
E AND": LET UK(3)="GLANCES AT GR
AKTA": GO TO 100
4110 LET UK(2)="HUH?": GO TO 100
4500 INK 5: CLS: PRINT "CLONE Y
EAR: ",CY: " ZONETIME ":CT: PRIN
T : PRINT "-----"
4501 PRINT : PRINT "VESPOZIAN "
4501 PRINT UK(2): IF ST=1 THEN
PRINT "ETA=-",CT:ABS <CD-PV>#25
-JE
4505 PRINT : PRINT "NEAREST BODY
IS ":RKPV: IF PV=2 THEN PRINT
"BLUELINE STARGATE"
4510 PRINT : PRINT "FUEL=-",PF:
" PICORATH": PRINT : PRINT "LASE
R=-",IF PF<1000 THEN PRINT "
INOPERATIVE": GO TO 4520
4511 PRINT "OPERATIVE"
4520 PRINT : PRINT "-----"
4521 INK 7: PRINT : PRINT INK 4
"THINK CONTROL REPORTING: FOR
I=1 TO 550: NEXT I: GO TO 4020
5000 DATA "IN THE CREWS QUARTERS
", "IN THE RESEARCH LAB BY", "IN T
HE SHUTTLE BAY", "IN A SHUTTLE",
"OUTSIDE THE HULL", "IN THE CAPTAI
NS CABIN", "IN THE NAVIGATION AND
", "ON THE BRIDGE", "ON YUSES FAR
UNDER", "AT VESPOZIAN FUEL CORE"
5001 DATA "IN A METAL GANGWAY WI
TH A", "IN A SUIT ROOM", "IN A SEC
RET CONTROL ROOM", "ON YUSES FAR
", "IN MY BUNK-IT HAS CLEAN"
5002 DATA "LINED WITH BUNKS", "BL
UE BUTTON BY A CLOSED BULKHEAD",
"BLUE BUTTON ON WALL", "WITH-THIN
K CONTROL-CONTROL", "OF THE VESPOZ
IAN", " ", "COMPUTER ROOM", "A PU
RPLE SKY", "I CAN FEEL HEAT"
5003 DATA "DOOR", " ", "WITH DUPLIC
ATE CONTROL", "UNDER AN INDIGO SK
Y", "SHEETS AND LARGE PILLOW"
5004 DATA "RUTO SHUTTLE", "STRANG
E DEVICE", "APOLYPS", "CARULHAY",
"ASBESTOS SUIT", "SPACE SUIT", "ME
TAL CONTAINER", "FUEL CYLINDER",
"INSULATED TONGS", "CAP'N BEZEL",
"GRAKTA", "HACHEN", "DISK 005", "DIS
K 001", "DISK 002", "DISK 003", "DI
SK 004", "KEY", "GLOWING ROCK"
5005 DATA "FUNGUS", "LITTLE FUNGUS"
"GYRATES", "ROTH", "BULGEN", "GREA
TER BULGEN", "OUTER FUNGUS", "GREA
T FUNGUS", "YUSES FAR", "HID YUSES", "Y
USES NEAR", "YUSES"
5006 DATA "DSB", "PF", "P", "O", "Y",
"OC", "AFUP", "AU", "TE", "S", "PD",
"P", "O", "NEW", "U"
5007 DATA "HBO", "AGC", "B", "C", "C",
"G", "G", "BHKF", "GR", "DN", "F", "JG
HL", "K", "K", "NHI", "A"
5008 DATA 3,2,99,99,12,12,6,10,2
,6,7,8,66,2,8,6,7,13,99
5009 DATA -2,2,2,-2,2,2,2,2,-2
,-2,-2,2,2,2,2,-2
5000 INK 2: CLS: PRINT "GRAKTA,

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BLOODLINE SPY, BLASTS": PRINT "
YOU WITH HIS LASER": PRINT "YOU
ARE NOW A FILE OF": PRINT "YUSES
DUST!": GO TO 6200
6010 INK 2: CLS: PRINT "AARGH.
- I": PRINT "MENT INTO THE FUEL
CORE WITHOUT": PRINT "PROTECTIO
N - SEARING HEAT . . ": GO TO 620
0
6020 INK 4: CLS: PRINT "WITH NO
FUEL, THE VESPOZIAN": PRINT "WA
NDERS AIMLESSLY OUT": PRINT "OF
CONTROL, LOST IN SPACE": GO TO 6
200
6030 INK 2: CLS: PRINT "TOO CLO
SE PROXIMITY": PRINT "THE VESPOZ
IAN IS RIPPED APART": PRINT "BY
THE EXPLOSION": GO TO 6200
6040 INK 5: CLS: PRINT "SHHH!"
PRINT "THE BLOODLINE STARGATE I
S": PRINT "VAPOURISED, YOU HAVE
SUCCEEDED": PRINT "IN YOUR MISSI
ON! CONGRATULATIONS": GO TO 6302
6050 INK 5: CLS: PRINT "INHER D
OOR CLOSERS": PRINT "AIR EVACUATE
D": PRINT "OUTER DOOR OPENS - NO
SPACE SUIT": PRINT "YOU PERISH
AND DRIFT INTO SPACE": GO TO 620
0
6055 INK 5: CLS: PRINT "YOU HAV
E STUMBLED BLINDLY ONTO": PRINT
"RAZOR SHARP ROCK": PRINT : PRIN
T "YOUR SUIT HAS RIPPED AND YOU
": PRINT "DIE FROM LACK OF OXYGEN
": GO TO 6200
6060 INK 2: CLS: PRINT "PRESSUR
E SWITCH OPERATES": PRINT "DRILL
ENGAGES AND BORES THROUGH": PRIN
T "CRAFT."
6061 INK 4: IF C1<5=6 THEN PRIN
T "YOU DRIFT OFF INTO SPACE": PR
INT "AND PERISH WHEN OXYGEN RUNS
OUT": GO TO 6200
6065 INK 2: PRINT "YOU BURST APP
RT WITH THE": PRINT "DEPRESSURI
ZATION": GO TO 6200
6070 INK 5: CLS: PRINT "WALKING
AROUND IN ",UK(2): PRINT "HIGH
LY SUSPICIOUS!": PRINT "GRAKTA,
BLOODLINE SPY BLASTS YOU": GO TO
6200
6080 INK 2: CLS: PRINT "GRAKTA,
BLOODLINE SPY, BLASTS": PRINT "
YOU FOR TREACHERY AGAINST THE":
PRINT "BLOODLINE EMPIRE!": GO T
O 6200
6090 INK 2: CLS: PRINT "GRAKTA
VAPOURISES YOU ON": PRINT "SUSPI
CION OF SPYING BY": PRINT "RETRI
EVING COMPUTERISED DATA": PRINT
"YOU PERISH . . ": GO TO 6200
6100 INK 4: CLS: PRINT "GRAKTA
NOTICES SUIT ROOM DOOR": PRINT "
OPEN. FINDS KEY ON YOU AND": PRIN
T "BLASTS YOU TOWARDS FUNGUS": P
RINT "YOU PERISH . . ": GO TO 620
0
6110 INK 5: CLS: PRINT "GRAKTA
NOTICES SHUTTLE BAY": PRINT "DOO
R OPEN, AND SUSPECTS A PLOT": PR
INT "AGAINST THE BLOODLINE EMPIR
E": PRINT "YOU ARE EJECTED IN TH
E SHUTTLE": PRINT "AND FOREVER L
OST IN SPACE"
6200 FOR O=10 TO -5 STEP -1: BEE
P .05,0: NEXT O: INK 7: PRINT :
PRINT : PRINT "YOUR ADVENTURE IS
OVER": PRINT "IF YOU WOULD LIKE
ANOTHER": PRINT "GAME THEN PRES
S anykey": GO TO 6205
6202 INK 7: GO SUB 3525: GO SUB
3526: GO SUB 3527: PRINT : PRINT
: PRINT "YOUR ADVENTURE IS OVER

```

```

" : PRINT "IF YOU WOULD LIKE ANOT
HER": PRINT "GAME THEN PRESS ""Y
""
6205 IF INKEY$="" THEN GO TO 62
95
6210 IF INKEY$="" THEN CLS : C
LEAR : RUN 8
6215 PRINT : PRINT INK 6; FLASH
1;"GOODBYE THEN": PHASE 100: NE
W
7000 PAPER 0: BORDER 0: INK 2: C
LS
7005 PRINT AT 2,5,"
"
7010 PRINT "
"
7015 PRINT "
"
7020 PRINT "
"
7025 PRINT "
"
7030 PRINT "
"
```

```

"
7035 PRINT "
7040 PRINT "
"
7045 PRINT "
"
7050 PRINT : PRINT
7055 PRINT "
"
7060 PRINT "
"
7065 PRINT "
"
7070 PRINT "
"
7075 PRINT : PRINT : PRINT INK
5;"By Keith Campbell. © C&VG 198
3."
7080 PRINT AT 21,7; INK 6;"PRESS
"""" TO PLAY"
7085 IF INKEY#="" THEN GO TO 70
85

```

```

7090 IF INKEY="" THEN GOTO 7090
      THEN GO TO 8000
7095 GO TO 7085
8000 IF PEEK 3560/64 AND PEEK 3560/91 THEN INK 2: CLS: R=
8007 CLS: INK 2: PRINT INK
8012 GO TO YOU PLEASE ENSURE THAT
      PRINT "YOUR SPECTRUM I
      PRINT "
      PRINT "CAP
      BEFORE I
8018 PRINT: PRINT "CHANGE TO
      CAPITAL MODE NOW."
      PRINT "
      PRINT "PRESS "
      WHEN READY
8015 INPUT @
8017 IF @="" THEN GO TO 8000
8018 GO TO 8015
8020 INK 2: CLS: RUN 8
8050 PRINT AT 21,0,"YOU ARE
      USING CAPITAL S."
      PRINT AT 21,0,"
      RETURN

```

CONVERTED BY STEVE WILLIS

In order to use the listing provided, colour is not needed but mode will be required in the DATA strings (lines 1520-1580). Where I have shown words highlighted in yellow the words should be omitted and 1 space inserted instead. To use colour then the word must be replaced by its respective colour control character instead of a space. Following is a list of colour control character/keyboard equivalents:—

DIV	RED	1	A
EOR	GREEN	2	B
MOD	YELLOW	3	C
OR	BLUE	4	D
ERROR	MAGENTA	5	E
LINE	CYAN	6	F
OFF	WHITE	7	G
STEP	flashing on	8	H
SPC	flashing off		

For the string in the text colour control display lines. These can be inserted between the first " and the first character of the string. The string will then be displayed in colour during listing as well as running. A spinoff is that the remainder of the listed line, after the end of the string, will also appear in colour to the end of the display line; this does not have any bearing on the operation of the program.



"You traitor", yelled Grakta, lashing out

```
10MODE7
20PRINTTAB(0,2)CHR$(131)CHR$(
157)
```

```

157)      30FOR I%=3TO4:PRINT TAB(0,I%)*CHR
R$(131)*CHR$(141)*CHR$(255)*CHR$(25
5)*CHR$(255)"      THE VESPOZIAN IN
CIDENT      "CHR$(255)*CHR$(255)*CHR
$(255):NEXT

```

```
$ (255):NEXT
40PRINTTAB(0,5)CHR$(131)CHR$(
157)
```

```

50PRINT"TAB(4)" Written by K
  with Campbell for"":FORI%=6TO7:
PRINTTAB(7)CHR$(141)" COMPUTER &
  VIDEO GAMES":NEXT:PRINT"" BE
C micro translation by Steve Wil
liams""

```

```
60IFPAGE<>E00THENPAGE=&1200
70CHAIN"VESPOZ"
80END
```


EEK 2
RUN
(5)
P
IS I
PITAL
O
PRIN
HOT
PRI

Illustration: David Pugh

ok

```
100CLEAR:CLS:A$="RUN"
200IML$ (14),L1$ (14),E$ (14),D$
(14),D$ (18),P$ (18),C$ (18),NB$ (11
),Q$ (4),V$ (8)
30FOR I%=0TO14:READL$ (I%),L1$ (
I%),E$ (I%),D$ (I%):NEXT:FOR I%=0TO
18:READ D$ (I%),P$ (I%),C$ (I%):NEX
T:FOR I%=0TO11:READNB$ (I%):NEXT
40Q%=RND(-TIME):IN%=0:K1%=0:P
N%=1:CT%=0:JM%=-1:PV%=6:CY%=143:
PF%=600:CD%=2:AT$="A THOUGHT IS
FRAMED IN YOUR MIND":ST%=1:PZ%=
999:SF%=1
50WV$="TAKDROLIFLOOEXAPOEUNLL
OCCLOWAREMINSRAIPREKIL"
60W$="PORSTAFORAFUT DOWOUTB
UNSHUNOREASWESBULDOOCRAVES"
70WD$="PSFAUDOBTHMLRCV"
80WN$="SHUDEVPOLCRASBSPAONC
YLTONBEZGRAMAC005001002003004KEY
ROCDISPILDOOBUTAROSCR"
90IFPN%(<)STHENRT%=0ELSEIFPL%
=6THENRT%=5:IFRT%=5THENPN% (9)=5:P%
(10)=5ELSEP% (9)=99:P% (10)=6
100IFP% (7)=90R(P% (6))=9ANDP% (6)
>2)THENSF%=1ELSESF%=0
110IFPV%=3ANDP% (2)=99THENP% (2)
=4
120IFPN%=2ANDC% (0)=-4ANDC% (4)<
>5THENGOSUB1950:GOTO1650
130IFC% (6)=3ANDP% (6)=9THENC% (6)
=4:PF%=PF%+2000:Q$ (3)="NEW FUE
L LOADED"
140CT%=CT%+1:IFST%<>1THENGOTO1
70ELSEJEX%=JEX%+1:IFJEX%<25THENGOTO
170ELSEJEX%=JEX%-25:PV%=PV%+JM%:CL
S
150IFPV%=CD%THENST%=2:PF%=PF%+
100:SOUND0,-15,8,10:FORX%=6TO7:P
RINTTAB (11,X%)CHR$ (141) " VESPOZI
AN IN":NEXT:FORX%=9TO10:PRINTTAB
(19,-LEN(NB$ (PV%)))+6)/2,X%)CHR$
(141)NB$ (PV%); " ORBIT":NEXT:GOSUB
1940:GOTO170
160SOUND0,-15,8,10:FORX%=6TO7:
PRINTTAB (7,X%)CHR$ (141) " VESPOZI
AN PASSING":NEXT:FORX%=9TO10:PRI
NTTAB (16,-LEN(NB$ (PV%)))/2,X%)CHR$
(141)NB$ (PV%):NEXT:GOSUB1940
170IFCT%=200THENCT%=1:CY%=CY%+
1
180IFCD%=PV%THENST%=2
190IFST%=2THENOD$="ORBITTING"
ELSEOD$="BEARING ON"
200IFPN%=9ANDC% (4)<>4THEN1600
210IFPV%=2ANDPN%=4ANDP% (12)=99
THENP% (12)=4
220IFP% (2)=13THENP% (2)=88:PZ%
=CY%:Q$ (3)="POLYPS VANISH INTO T
HE ROCKS"
230IFCY%>PZ%+19THENP% (18)=13:P
Z%=CY%
```

```
240IFP% (1)=PN%AND(PN%=80RPN%=1
3)AND(P% (1)>130R(P% (6)>13)THEN
SOUND0,-15,3,100:Q$ (3)="SWITCH
STARTS MOTOR. DRILL":Q$ (4)="ENG
AGES AND SPRAYS DUST!"
250IFP% (18)=13ANDP% (1)=13ANDP%
(6)=13ANDC% (6)=2THENP% (18)=88:Q$
(6)="FUEL CONTAINER":C% (6)=3:SO
UND0,-15,3,100:Q$ (3)="SWITCH ST
ARTS MOTOR. DRILL":Q$ (4)="ENGAG
ES AND FILLS CONTAINER."
260IFP% (17)=55THENC% (3)=3
270IFC% (4)>3AND(PN%=10RPN%=60R
PN%=70RPN%=10)THENIG%=IG%+1ELSEI
G%=0
280IFIG%>0THENP% (10)=PN%:IFIG%
=5THENGOSUB1950:GOSUB1600
290IFP% (10)=PN%THENIFRND (7)>3T
HENQ$ (1)="EVER GET THE FEELING
. . ?"
300IFP% (4)<>55ANDP% (4)>11ANDP
% (4)>66THENP% (4)=88:Q$ (1)="STR
ANGE FEELING. . .ELSEIFP% (5)<>55
ANDP% (5)<>11ANDP% (5)<>66THENP% (5)
=88:Q$ (1)="STRANGE FEELING. .
"
310IFC% (3)=2ANDP% (17)<>55ANDP%
(17)<>66ANDP% (17)>99THENP% (17)=
88:Q$ (1)="STRANGE, SOMETHING SE
EMS MISSING":C% (17)=3
320IFP% (10)=1ANDPN%=1ANDK1%=14
THENGOSUB1950:GOTO1650
330IFPN%=10RPN%=60RPN%=70RPN%=
10THENIFRND (3)=2THENP% (10)=PN%:EL
SEP% (10)=88
340IFP% (17)=55ANDP% (17)>11ANDPN%
<1)ANDC% (17)>2THENGOSUB1950:GOT
O1710
350IFC% (0)=3ANDPN%<>1ANDPN%<>2
THENGOSUB1950:GOTO1720
360FOR I%=1TOLEN(E$ (PN%))
370IFMID$ (E$ (PN%), I%, 1)="P"THE
NEX$=EX$+"PORT."
380IFMID$ (E$ (PN%), I%, 1)="S"THE
NEX$=EX$+"S'BOARD."
390IFMID$ (E$ (PN%), I%, 1)="F"THE
NEX$=EX$+"FOR'D."
400IFMID$ (E$ (PN%), I%, 1)="A"THE
NEX$=EX$+"AFT."
410IFMID$ (E$ (PN%), I%, 1)="U"THE
NEX$=EX$+"UP."
420IFMID$ (E$ (PN%), I%, 1)="D"THE
NEX$=EX$+"DOWN."
430IFMID$ (E$ (PN%), I%, 1)="O"THE
NEX$=EX$+"OUT."
440NEXT
450I1%=0:V$ (I1%)="VISIBLE":":
FOR I%=0TO18:IFP% (I%)=PN%THENOS$
=O$ (I%):ELSENEXT:GOTO480
460IFLEN(V$ (I1%))<35T
HENV$ (I1%)=V$ (I1%)+OS$+":":OS$=
"ELSEI1%=I1%+1:GOTO460
```


BBC CONTINUED

```

470NEXT
480CLS:PRINT " I AM";L$(PN%);'L
1$(PN%);' :IFLEN(EX$)>0THEN PRINT
" WAYS: ";EX$
490IFLEN(V$(0))>9THENPRINTV$(0)
'
500FORI%=1TO8:IFV$(I%)<>" "THEN
PRINTV$(I%)
510NEXT
520PRINT" " =====>YOU SAID ";A
$:FORI%=1TO4:IFQ$(I%)<>" "THENPR
INTQ$(I%)
530NEXT
540PRINT" " =====>WHAT NOW";
550PL%=PN%:FORI%=0TO4:V$(I%)="
":Q$(I%)=" " :NEXT: A1$=" " : A2$=" " : A
3$=" " : A4$=" " : EX$=" " : INPUTA$
560IFLEN(A$)<3THEN1740ELSEA2$=
LEFT$(A$,3)
570IFA2$="INV"THENGOTO710ELSEI
FA2$="WAI"THENGOTO740ELSEIFA2$="
QUI"THEN760ELSEIFA2$="HEL"THEN76
0ELSEIFA2$="SLE"THEN1510
580J%=0:FORI%=1TOLEN(A$):IFMID
$(A$,I%,1)=" " THENJ%=I%:I%=LEN(A
$)
590NEXT:IFJ%=0THENGOTO1850ELSE
A1$=LEFT$(A$,J%-1):A3$=RIGHT$(A$
,LEN(A$)-J%):A4$=LEFT$(A$,3)
600IFA1$="GO"ORA2$="GET"THEN66
0
610X$=WV$:Y$=A2$:GOSUB1910:IFJ
%>0THENOQ$(2)=" I DON'T KNOW HOW
TO "+A1$:GOTO90ELSEK1%=(J%-1)/3+
1
620X$=WN$:Y$=A4$:GOSUB1910
630IFJ%>0THENOQ$(2)=" WHAT IS A
"+A3$+"?" :GOTO90
640K2%=(J%-1)/3
6500N K1% GOTO670,690,770,790,
790,930,950,960,970,980,1000,101
0,770,1160,1500
660X$=WG$:Y$=A4$:GOSUB1910:IFJ
%>0THEN1750ELSEX$=E$(PN%):Y$=MID
$(W$, (J%-1)/3+1,1):GOSUB1910:IF
J%>0THEN1750ELSEPN%=VAL(MID$(D$(
PN%), (J%-1)*2+1,2)):GOTO1760
670IFK2%=19THEN1770ELSEIFK2%>1
8THEN1740ELSEIFP$(K2%)=55THEN178
0ELSEIFP$(K2%)<PN%THEN1790ELSEI
FC$(K2%)<-1THEN1740ELSEIFC$(K2%)
=-1THEN1800ELSEIFP$(9)=PN%THEN18
40
680IF(K2%=70R(K2%=6ANDC$(6)=3)
)ANDP$(8)<>55THENOQ$(2)=" TOO HO
T TO HANDLE !":GOTO90ELSEIFIN%>3
THENOQ$(2)=" I'M OVERLOADED ALREA
DY !":GOTO90ELSEIN%=IN%+1:P$(K2%)
=55:GOTO1760
690IFK2%=18THEN1810ELSEIFP$(K2
%)<>55THEN1810ELSEIFK2%=1AND(PN%

```

```

<>8ANDPN%>13)THENGOSUB1950:GOTO
1660ELSEIN%=IN%+1:IFPN%=14THENP
$(K2%)=66:Q$(3)=" SLIPPED IT UNDE
R THE PILLOW."ELSEP$(K2%)=PN%
700GOTO1760
710IFIN%=0THENOQ$(2)=" I AM CAR
RYING: NOTHING !":GOTO90ELSESEQ$(2
)=" I AM CARRYING: ":J%=1:FORI%
0TO18
720IFP$(I%)<>55THENGOTO730ELSE
IFLEN(Q$(J%+1))+LEN(Q$(I%))<35TH
ENOQ$(J%+1)=Q$(J%+1)+Q$(I%)+". "EL
SEQ$(J%+2)=Q$(I%)+". " :J%=J%+1:IF
J%=55THENI%=18:NEXT:GOTO90ELSE NE
XT
730NEXT:GOTO90
748CT%=CT%+15:IFST%=1THENJ%=J
E%+15
750GOTO1760
760Q$(2)=" ALWAYS LOOK AROUND
AND":Q$(3)=" EXAMINE THINGS.
TRY WORDS":Q$(4)=" LIKE IN
SERT, LIFT, WAIT . .":GOTO90
770IFK2%<200RPN%>14THEN1740E
LSEQ$(2)=" NOTHING !":FORI%=0TO1
8:IFP$(I%)=66THENP$(I%)=14:Q$(2)
=" IT WAS STILL THERE !"
780NEXT:GOTO90
790IFK2%<23THEN820ELSEIFPN%=7
THENOQ$(2)=" I SEE A BUTTON MARKE
D":Q$(3)=" -THINK CONTROL-":
GOTO90ELSEIFPN%=10ANDLEN(E$(10))
=2THENEQ$(10)=E$(10)+"L":Q$(2)="
NOW !!! ":L1$(10)=L1$(10)+"
AND HIDDEN BULKHEAD":GOTO9
0
800IFPN%=9ANDC$(9)="S"THENEQ$(
9)="SC":P$(3)=9:Q$(2)=" AHA !
!! ":GOTO90ELSEIFPN%=6THENOQ$(2)=
" COURSE DATA IS ON THE SCREEN":
GOTO90
810IFPN%=2THENIFC$(0)=-3THENOQ$
(3)=" INNER DOOR OPEN":Q$(4)=" O
UTER DOOR CLOSED":GOTO1760ELSEIF
C$(0)=-4ANDPN%=2THENOQ$(3)=" INNE
R DOOR CLOSED":Q$(4)=" OUTER DOO
R OPEN":GOTO1760
820IFK2%=19THEN1770ELSEIFK2%=1
ANDP$(1)<>55ANDP$(1)<PN%THEN177
0ELSEIFK2%=1THENOQ$(2)=" IT HAS A
HOLLOW CYLINDRICAL CUTTER":Q$(3
)=" AND SENSITIVE PRESSURE SW
ITCH":GOTO90
830IFPN%=20RPN%=1)ANDK2%=22TH
ENOQ$(2)=" A SIGN SAYS - AIRLOCK
CONTROL -":GOTO90
840IFK2%=160RK2%<12THEN850ELSE
IFP$(K2%)<>55THEN1810ELSE ONK2%-
11 GOTO 880,890,900,910,920
850IFK2%=20ANDPN%=14THENOQ$(3)=
" LOOKS STRANGELY LUMPY . .":GOT
O1760
860IFK2%=24ANDPN%=6THEN1860

```

```

8700$(3)=" NOTHING SPECIAL
GOTO1760
8900$(2)=" LABEL -YUSES-":GOTO
9100$(2)=" LABEL -POLYPS-":GOT
9300$(2)=" LABEL -FUNUS-":GOTO
9500$(2)=" LABEL -CONFIDENTIAL
":GOTO90
9700$(2)=" LABEL -BLOODLINE-":
GOTO90
990IFK2%<>21THEN1740ELSEIFPN%<
10THEN1790ELSEIFC%(17)=2THEN0%<
2)=" LOCKED ! ":GOTO90:30RPN%<
17)=4THEN0%<2)=" ALREADY OPEN !
":GOTO90ELSEIFP%(17)=10THEN1590
940C%(17)=4:E%(10)=E%(18)+"R":
GOTO1760
950IFK2%<>21THEN1740ELSEIFPN%<
10THEN1790ELSEIFC%(17)>2THEN183
ELSEIFP%(17)>>55THEN1800ELSEC%<
17)=3:GOTO1760
960IFK2%<>21THEN1740ELSEIFPN%<
10THEN1790ELSEIFC%(17)<>30RPN%<
17)>55THEN1800ELSEC%(17)=2:GOTO1
760
970IFK2%<>21THEN1740ELSEIFPN%<
10THEN1790ELSEIFC%(17)<>4THEN18
0ELSEC%(17)=3:E%(10)=LEFT$(E%(1
0),3):GOTO1760
980IFK2%<>4ANDK2%<>5THEN1740
990IFP%(K2%)<>55THEN1810ELSEIF
C%(4)=K2%THEN0%<2)=" WHAT'S THIS
I'M WEARING THEN ?":GOTO90ELSEIF
C%(4)>2THEN0%<2)=" WEARING "+LE
FT$(0$(C%(4)),LEN(0$(C%(4)))-7):
GOTO90ELSEC%(4)=K2%:0%(K2%)=0%(K
2%)+("WORN"):GOTO1760
1000IFK2%<>4ANDK2%<>5ORC%(4)=
2THEN1820ELSEC%(4)=2:0%(K2%)=LEF
T$(0%(K2%),LEN(0%(K2%))-7):GOTO1
760
1010IFK2%=19THEN1770ELSEIFK2%<1
20R2%>16THEN1740ELSEIFP%(K2%)<>
55THEN1810ELSEIFPN%<>6THEN0%<2)=
" NO COMPUTER TO TAKE IT":GOTO90
1020IFP%(10)=6ANDK2%>11ANDK2%<1
7THENGOSUB1950:GOTO1700
1030CLS:FORX%=5TO6:PRINTTAB(7,X
%):CHR$(141):0%(K2%):NEXT:FORX%=8T
O9:PRINTTAB(2,X%):CHR$(141):" SPIN
S IN IT'S DRIVE . . .":NEXT:SOUND
0,-15,7,100:TIME=0:REPEAT UNTIL
TIME>500:CLS:0NK2%-11GOTO1040,10
60,1080,1100,1120
1040PRINTTAB(12)" -YUSES SYSTEM
-""TAB(6)" STAR SYSTEM 7 LIGHT-
YEARS""TAB(6)" FROM FUNUS . HAS
3 PLANETS.""TAB(2)NB%(10)" -
BALL OF FIRE""TAB(2)NB%(9)" -
INHABITED BY MINING""
COLONY. NO FINDS"

```

```

1050PRINTTAB(2)NB%(8)" - REM
OTE DEAD PLANET":GOTO1140
1060PRINTTAB(13)" -POLYPS-""TA
B(4)" FREQUENT GALAXY IN MILLION
S""TAB(4)" AROUND ENERGY-RICH P
LANETS.""TAB(4)" REGENERATE EVE
RY 20 YEARS.""TAB(4)" ACTIVE PO
LYPS CAN TURN DEAD""TAB(1)" PLA
NET INTO GREENHOUSE - EFFECT""
1070PRINTTAB(2)" PLANET, RICH I
N STELLAR ENERGY""TAB(8)" AFTER
20 YEARS . .":GOTO1140
1080PRINTTAB(12)" -FUNUS SYSTEM
-""TAB(7)" STAR WITH 7 PLANETS.
""TAB(2)" IN ORDER FROM FUNUS:-
""TAB(4)NB%(1)" - <MOLTEN ROCK
>""TAB(4)NB%(2)" - <GYRATES < UN
INHABITED>""TAB(4)NB%(3)" - <G
REENHOUSE-EFFECT>""TAB(4)NB%(4)
1090PRINT" - <INHABITED>""TAB(
4)NB%(5)" - <TAB(4)NB%(6)" - <ICY
WASTE>""TAB(4)NB%(7)" - <LUMP
OF ROCK>":GOTO1140
1100PRINTTAB(10)" -CAPTAIN'S LO
G-""TAB(2)" BEARING TO DOCK WIT
H BLOODLINE""TAB(4)" STARGATE I
N GYRATES ORBIT.""TAB(2)" MISSI
ON ACCOMPLISHED - D'TARN'S""TAB
(5)" EXPERIMENTS CONFIRM POLYP""
" THEORY. PITY BLOODLINE WILL
BENEFIT !"
1110PRINTTAB(2)" GLAD TO GET S
HOT OF THIS CREW !""TAB(3)" BLO
ODLINE SPY. MACHEN, ""TAB(3)" TH
E TIRATHEN LIZARD. GIVES ME""TA
B(3)" THE CREEPS. CAN'T GET RID
OF""TAB(2)" HIM. - THE ONLY PIL
OT ABOARD !":GOTO1140
1120PRINTTAB(12)" -BLOODLINE-""
TAB(5)" TYRANNICAL EMPIRE KEEPIN
G""TAB(5)" CONTROL ON ENERGY S
UPPLIES""TAB(5)" FROM GREENHOU
SE PLANETS -""TAB(4)" ON WHICH I
NTERSTELLAR TRAVEL""TAB(4)" DEP
ENDS. ""TAB(4)" STARGATE IN FUNU
S SYSTEM CAN"
1130PRINTTAB(2)" SUMMONS CRUIS
ERS TO QUELL REBELS."":GOTO1140
1140*FX21,0
11500$(2)=" YOU REMOVE THE DISK
. .":PRINTTAB(3,24)" PRESS SPAC
E BAR TO CONTINUE":D=GET:IFD=&2
0THEN90ELSE1140
1160IFK2%<>22THEN1760
1170IFPN%<>7ANDP%(10)=7THEN1590E
LSEIFPN%<>7THEN0%<2)=" MACHEN, TH
E LIZARD PILOT":0%(3)="
RESTRAINS YOU.":GOTO90
1175SOUND0,-10,2,5
1180IFPN%<>12THEN1350ELSEIFSF%<
0THEN1610ELSEGOSUB1930
1190PRINTTAB(4)" HEADING, CRYO

```

DDDD

```

GEN, LASER, END"
1200*FX21,0
1210Z$=INKEY$(100):IFZ$="H"THEN
1220ELSEIFZ$="C"THEN1260ELSEIFZ$
="L"THEN1290ELSEIFZ$="E"THEN1760
ELSE1210
1220J$=0:GOSUB1930:PRINT" CURRE
NTLY ";OD$;"; ";NB$(CD$):INPUT"
NEW DESTINATION==> "AA$;AA$="
"+AA$:FORI%=0TO11:IFAA$=NB$(I%)T
HENJ%=1%
1230NEXT:IFJ%=0THENPRINT" ";AA
$;" NOT ON THE DATABASE":TIME=0:
REPEAT UNTIL TIME>200:GOTO1180
1240IFJ%=CD$THEN1180ELSEIFJ%>PV
%THENJM%=1ELSEJM%=-1
1250ST%=1:JE%=0:CD%=J%:PF%=PF%-
100:SOUND0,-15,1,10:PRINT" COUR
SE CORRECTION APPLIED"" NEW BE
ARING: ";NB$(CD$)"" FUEL: ";PF%
; " PICAROTH":GOSUB1940:IFFP%<1TH
EN1610ELSE1180
1260GOSUB1930:PRINTTAB(11)" CR
YOGENIC CONTROL""TAB(3)" ENERGY
TO FREEZE CREW - 10 PR/CY"":INP
UT" HOW MANY CLONE-YEARS FREEZE"
,AA$
1270IFVAL(AA$)*10>PF%THENSOUND0
,-15,2,5:PRINTTAB(11)" FUEL DEF
ICIENCY""TAB(10)" INTERLOCK OVE
RRIDE""TAB(9)" * OPERATION ABO
RTED *":GOSUB1940:GOTO1180
1280PF%=PF%-10*VAL(AA$):CY%=CY%
+VAL(AA$):PRINTTAB(15)" STAND
BY":GOSUB1940:GOSUB1950:PN%=14:Q
$(2)=YAWN . . !":ENVELOPE2,1,2
0,10,0,1,1,6,127,-1,0,-7,126,126
:SOUND1,2,122,200:GOTO90
1290GOSUB1930:PRINTTAB(13)" LAS
ER CONTROL"
1300INPUTTAB(4)" TARGET =====
> "AA$:IFAA$="STARGATE"THEN1320E
LSEAA$=" "+AA$:J%=0:FORI%=0TO11:
IFNB$(I%)=AA$THENJ%=1%:I%+1:NEX
T ELSE NEXT
1310IFJ%=0THENPRINT" ";AA$;" N
OT ON DATABASE":GOSUB1940:GOTO11
80
1320PRINT" TARGETED ON ";AA$:T
IME=0:REPEAT UNTIL TIME>500:IFFP
%<1000THENPRINTTAB(12)" FUEL DE
FICIENCY"ELSEIFJ%<>PV%AND(AA$="S
TARGATE"ANDPV%<2)THENPRINTTAB(
12)" OUT OF RANGE"ELSE1340
1330SOUND0,-15,2,5:PRINTTAB(11
)" COMPUTER OVERRIDE""TAB(8)"
* OPERATION ABORTED *":GOSUB1940
:GOTO1180
1340GOSUB1950:FORI%=0TO1000:NEX
T:GOSUB1950:FORI%=0TO1000:NEXT:G

```

```

OSUB1950:FORI%=0TO1000:NEXT:IFAA
$(<)"STARGATE"THEN1620ELSE1630
1350IFPN%=20RPN%=1THEN1460ELSEI
FPN%<>3THEN1790
1360GOSUB1930
1370PRINT" THINK 'DESTINATION'
OR 'END':INPUT"" THINK COMMAND:
"AA$:AA$=" "+AA$:IFAA$(<)" VESPO
ZIAN"THEN1380ELSEIFP%<0)=2THENPR
INTTAB(9)" SHUTTLE AT VESPOZIAN
""TAB(9)" * OPERATION ABORTED
*":SOUND0,-15,2,5:GOSUB1940:GOTO
90
1375PRINTTAB(10)" IN FLIGHT VE
SPOZIAN":GOSUB23000:FORXX%=7T08:
PRINTTAB(11,XX%)CHR$(141)" DOCK
ING":NEXT:GOSUB1940:P%(0)=2:D%(3
)=2*":GOTO90
1380IFLEFT$(AA$,1)="E"THEN1760
1390J%=0:FORI%=0TO11:IFAA$=NB$(
I%)THENJ%=1%
1400NEXT:IFJ%=0THENPRINT" ";AA
$;" NOT ON DATABASE":GOSUB1940:G
OTO90
1410IFJ%<>PV%THENPRINT" ";AA$;
" OUT OF RANGE":GOSUB1940:GOTO90
1420IFST%=1THENPRINT" VESPOZIA
N NOT IN ";AA$;" ORBIT""TAB(8)
" * OPERATION ABORTED * ":SOUND
0,-15,2,5:GOSUB1940:GOTO100
1430IFJ%<>8THENPRINT" CONDI
TIONS ON ";AA$"" NOT SUITABL
E FOR SHUTTLE LANDING""TAB(8)"
* OPERATION ABORTED * ":SOUND0,
-15,2,5:GOSUB1940:GOTO90
1440IFC%(0)<>4THENPRINTTAB(7)
" SHUTTLE BAY DOORS CLOSED":GOSU
B1940:SOUND0,-15,2,5:PRINTTAB(8
)" * OPERATION ABORTED * ":GOSU
B1940:GOTO90
1450PRINT" HEADING - ";AA$:GOS
UB23000:FORXX%=7T08:PRINTTAB(5,X
%)CHR$(141)" LANDED ON ";AA$:NE
XT:P%(0)=8:D%(3)=8*":GOSUB1940:
GOTO100
1460SOUND1,-10,1,60:IFPN%=1THEN
IFC%(0)=2THENC%(0)=3:L1$(1)="
BLUE BUTTON BY OPEN BULKHEAD":E$(
1)="PFL":GOTO1760ELSEIFC%(0)=3
ANDPN%=1)THENC%(0)=2:L1$(1)="
BLUE BUTTON BY CLOSED BULKHEAD":
E$(1)="PF":GOTO1760
1470SOUND1,-10,1,60:IFPN%=2ANDC
%(0)=3THENC%(0)=4:E$(2)="OT":D
$(2)="4*3*":Q$(3)=" INNER DOOR C
LOSES":Q$(4)=" OUTER DOOR OPENS"
:GOTO1760
1480IFPN%=2ANDC%(0)=4THENC%(0)
=-3:E$(2)="TP":D$(2)="3*1*":Q$(3)
=" OUTER DOOR CLOSES":Q$(4)=" I
NNER DOOR OPENS":GOTO1760
1490GOTO1790
1500Q$(2)=" TOO RISKY !":GOTO90

```



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15100*(2)=" I'M NOT TIRED !":GOTO90
1520DATAMODIN THE CREW'S QUARTERS,MOD LINED WITH BUNKS,DSB,7*1*14,LINEIN THE RESEARCH LABORATORY,LINE BLUE BUTTON BY CLOSED BULKHEAD,PF,0*6*2*,ERRORIN THE SHUTTLE BAY,LINE BLUE BUTTON ON THE WALL,P,1*,DIVIN A SHUTTLE, LINEWITHDIV-THINK CONTROL-LINEBUTTON,0,2*

1530DATAOROUTSIDE THE HULL,OR OF THE VESPOZIAN,V,2*,MODIN THE CAPTAIN'S CABIN,,OC,6*9*,LINE IN THE NAVIGATION AND, LINECOMPUTER ROOM,AFUP,1*7*105*,EORON THE BRIDGE,,AU,6*0*,ERRORONEOR'Y USES FAR'ERRORUNDER, ERRORA PURPLE SKY,TE,3*13

1540DATADIVAT VESPOZIAN'S FUEL CORE, DIVI CAN FEEL THE HEAT,S,105*,MODON A METAL GANGWAY WITH A DOOR,,PD,9*6*1211,LINEIN A SUIT ROOM,,P,10,DIVIN A SECRET CONTROL ROOM, DIVWITH DUPLICATE CONTROL,0,10,ERRORONEOR'Y USES FAR', ERRORUNDER AN INDIGO SKY

1550DATAHEW,13138*,MODIN MY BUNK - IT HAS CLEAN, MODSHEETS AND A LARGE PILLOW,U,0*

1560DATAEORAUTO-SHUTTLE,2,-2,EORSTRANGE DEVICE,1,2,MOD*POLYPS*,99,2,EORCRAWLWAY,99,-2,EORASBEST OS SUIT,11,2,EORSPACE SUIT,11,2,EORMETAL CONTAINER,5,2,EORFUEL CYLINDER,9,2,EORINSULATED TONGS,1,2,EORCAP'N BEZEL,5,-2,EORGRAKTA,6,-2,EORMACHEN,7,-2,EORDISK 005,66,2

1570DATAEORDISK 001,1,2,EORDISK 002,7,2,EORDISK 003,5,2,EORDISK 004,6,2,EORKEY,12,2,EORGLOWING ROCK,99,-2

1580DATAEORFUNUS,EORLITTLE FUNUS,EORGYRATES,EORROTH,EORBILGEN,EORGREATER BILGEN,EOROUTER FUNUS,EORFAR FUNUS,EORYUSES FAR,EORMID YUSES,EORYUSES NEAR,EORYUSES

1590CLS:SOUND0,-15,6,10:PRINT'' " GRAKTA, BLOODLINE SPY, BLASTS YOU"" WITH HIS LASER."" YOU ARE NOW A PILE OF YUSES DUST !":GOTO1730

1600CLS:SOUND0,-15,7,50:PRINT'' " AARGH . . !"" WENT INTO THE FUEL CORE WITHOUT"" PROTECTION - SEARING HEAT . . !":GOTO1730

1610CLS:PRINT'' WITH NO FUEL, THE VESPOZIAN"" WANDERS A

1620CLS:SOUND0,-15,6,100:PRINT'' TAB(10)" TOO CLOSE PROXIMITY"" " THE VESPOZIAN IS RIPPED APART BY"" THE TREMENDOUS EXPLOSION !":GOTO1730

1630CLS:SOUND0,-15,6,100:FORX%=1TO2:PRINTTAB(16,X%)CHR\$(141)" W HAM !":NEXT:FORX%=4TO5:PRINTTAB(7,X%)CHR\$(141)" THE BLOODLINE STARGATE IS":NEXT:FORX%=7TO8:PRINTTAB(4,X%)CHR\$(141)" VAPOURISED. YOU HAVE SUCCEEDED":NEXT

1640FORX%=10TO11:PRINTTAB(2,X%)CHR\$(141)" IN YOUR MISSION! CONGRATULATIONS!":NEXT:GOTO1730

1650CLS:SOUND0,-15,6,30:PRINT'' TAB(11)" INNER DOOR CLOSES"" TAB(13)" AIR EVACUATED"" TAB(11)" OUTER DOOR OPENS"" TAB(12)" NO SPACE SUIT !"" TAB(7)" YOU PERISH, AND DRIFT OUT"" TAB(11)" INTO SPACE . . .":GOTO1730

1660CLS:SOUND0,-15,3,50:PRINT'' TAB(3)" PRESSURE SWITCH OPERATES. DRILL"" TAB(3)" ENGAGES AND BORES THROUGH CRAFT.":IFC%(4)=5THENPRINT''TAB(7)" YOU DRIFT OFF INTO SPACE"" TAB(4)" AND PERISH WHEN OXYGEN RUNS OUT.":GOTO1730

1670SOUND0,-15,6,50:PRINT''TAB(4)" YOU BURST APART WITH THE"" TAB(20)" DEPRESSURISATION !":GOTO1730

1680CLS:SOUND0,-15,6,25:PRINT'' " WALKING AROUND IN AN";LEFT\$(0*(C%(4)),14)"" HIGHLY SUSPICIOUS !"" GRAKTA, BLOODLINE SPY, SHOOTS YOU !":GOTO1730

1690CLS:SOUND0,-15,6,25:PRINT'' " GRAKTA, BLOODLINE SPY, SHOOT S"" TAB(4)" YOU FOR TREACHERY AGAINST"" TAB(8)" THE BLOODLINE EMPIRE !":GOTO1730

1700CLS:SOUND0,-15,6,25:PRINT'' " GRAKTA VAPOURISES YOU ON"" TAB(4)" SUSPICION OF SPYING BY"" RETRIEVING COMPUTERISED DATA !"" YOU PERISH . . !":GOTO1730

1710CLS:SOUND0,-15,6,20:PRINT'' GRAKTA NOTICES SUIT ROOM DOOR OPEN. "" TAB(5)" FINDS KEY ON YOU AND BLASTS "" YOU TOWARDS FUNUS !":GOTO1730

1720CLS:PRINT'' GRAKTA NOTICES SHUTTLE BAY DOOR"" OPEN, AND SUSPECTS A PLOT AGAINST""

THE BLOODLINE EMPIRE. "" YOU ARE EJECTED IN THE SHUTTLE"" AND ARE LOST FOREVER IN SPACE !":GOSUB23000:GOTO1730

```

1730FORX%=20TO21:PRINTTAB 6,X%
CHR$(141)" YOUR ADVENTURE IS OVE
R !":NEXT INPUTTAB(11,23) ANOTH
ER GAME",A#:IFLEFT$(A#,1)="Y"THE
N CLEAR:RUN ELSE CLS:END
17400$(2)=" IMPOSSIBLE !":GOTO9
0
17500$(2)=" I CAN'T GO "+A3$%GO
T090
17600$(2)=" OK":GOTO90
17700$(2)=" REFERENCE DISK BY I
T'S NUMBER":GOTO90
17800$(2)=" I'M ALREADY CARRYIN
G IT !":GOTO90
17900$(2)=" I DON'T SEE IT HERE
":GOTO90
18000$(2)=" I CAN'T - YET !":GO
T090
18100$(2)=" I'M NOT CARRYING IT
!":GOTO90
18200$(2)=" YOU MUST BE JOKING
!":GOTO90
18300$(2)=" OK - NOTHING HAPPEN
S":GOTO90
18400$(2)=" CAP'N WINKS TO ME A
ND":0$(3)=" GLANCES AT GRAK
TA":GOTO90
18500$(2)=" HUH ?":GOTO90
1860CLS:PRINT"" CLONE YEAR: ";
CY%:" ZONETIME:":CT%:" ";
STRING$(38,"_"):" VESPOZIAN ";
D$%:TAB(24)NB$(CD%):IFST%=1THENPR
INT"" ETA:":TAB(17)CT%+ABS(CD%-
PV%)*25-JE%
1870PRINT"" NEAREST BODY:":TAB

```

```

(16)NB$(PV%):IFPV%=2THENPRINT'TA
B(10)" BLOODLINE STARGATE"
1880PRINT"" FUEL:":TAB(17)PF%:
" PICAROTH"" LASER:":IFPF%<
1000THENPRINTTAB(17)"INOPERATIVE
"ELSEPRINTTAB(17)"OPERATIVE"
1890SOUND1,-15,1,60:PRINT"" ;
STRING$(39,"_"):"TAB(5)" ;
CONTROL REPORTING ":TIME=0:REPEAT
UNTIL TIME>1000:GOTO1760
1900RETURN:REM**FLASHING SCREEN
HERE
1910J%=0:FORI%=1TOLEN(X$)STEPLE
N(Y$):IFY$=MID$(X$,I%,LEN(Y$))>TH
ENJ%=I%:I%=LEN(X$):NEXT:RETURN
1920NEXT:RETURN
1930CLS:FORX%=2TO3:PRINTTAB(0,X
%)CHR$(131)CHR$(141)AT$%:NEXT:PRI
NT:RETURN
1940TIME=0:REPEAT UNTIL TIME>70
0
1950FORI%=0TO10:CLS:GOSUB1900:N
EXT:RETURN
1960PRINTTAB(3)" THE ONLY TUBES
OPEN ARE THOSE""TAB(3)" MARKED
'DTARN' AND 'MACHEN'""TAB(3)" =
===== WHICH ONE":AR$="" :
A$=IFLEFT$(AR$,1)="D"THENPN$=15E
LSEIFLEFT$(AR$,1)="M"THENPN$=16
1970GOTO1760
23000ENVELOPE1,1,0,5,0,9,1,8,8,-
1,0,-1,82,80:SOUND0,-15,6,50:SOU
ND1,1,1,200:SOUND1,0,1,20:FORX%=
53TO1STEP-1:SOUND1,-(INT(X%DIV4)
),X%,2:NEXT:RETURN

```

RUNS ON AN ATARI 400/800. CONVERTED BY SIMON GOODWIN

```

10 REM VESPOZIAN AFFAIR - C&UG 1983
20 REM Author: P.Norris
30 REM Atari: conversion by S.Goodwin
32 READ N1,N2,N3,N4,N5,N6,Q2R,Q2B:OPEN #
N1,N4,"K"
33 DATA 1,2,3,4,5,6,56
35 GRAPHICS N:POKE 82,N:POSITION 9,N:?"
THE VESPOZIAN AFFAIR:?" :?" You pla
y the part of D'Taan, Scientific"
40 ? "Officer aboard the Bloodline Stars
hip Vespozian, Your (private) mission
is to blast the Bloodline Stargate out;
45 ? " or?:"existence.":?" ? "All the
information you need is available
on board the Vespozian."
50 POKE 752,N1:?" :?" "Good luck, D'Ta
an!":?" :LO=192
55 DIM R(18),C(18),H$(48),H$(48),H$(K
1),L$(480),L$(480),E$(68),D$(120),H$(8
1),H$(418),N$(K168),DS$(22),US$(288)
57 DIM O$(K10),S1$(32),O$(L0),SP$(32),EX
R(32),R$(32),A1$(32),A2$(N3),A3$(32),A4$(
N3),X$(81),Y$(N3),Z$(N1),O$(K120)
58 L$(N1)=" :L$(480)="" :L$(N2)=L$:L$=
L$:E$=L$:O$=L$:N$=L$:SP$=L$:L$=32
:L$(N4)=L$:O$=22:L$(N4)=L$0=
60 H$="TAKROLOILOFLOOQROPEUNILLOOQHEARE
HNSRAIPREKILSLE":O$=L$:DIM AR$(LNB)
61 H$="PORSTAFROGFTUP DOHOUTBUNSHUNREA
SHE$UDLOOQRAIES"
62 H$="PSFRUOODECHALRCU"
63 H$="SHUDEUOLCRH$SPACONC$Y,TONHE2BR
AND85681,86288,380,4KEYROCDI$PILDOOBUTARD

```

```

SCRBUNSHIE"
65 FOR I=N1 TO 15:READ S1$:L$(I*32-31,I*
32)=S1$:READ S1$:L$(I*32-31,I*32)=S1$
70 READ S1$:E$(I*H4-N3,I*H4)=S1$:READ S1
$:D$(I*8-7,I*8)=S1$:NEXT I
72 FOR I=N1 TO 19:READ S1$:O$(I*22-21,I
22)=S1$:READ A$(I-N1)=A$:READ A$(I-N1)
=N1:NEXT I
73 FOR I=N1 TO 12:READ S1$:N$(I*14-13,I
14)=S1$:NEXT I
75 PHENI:UN=N1:PU=N6:CY=143:PF=600:CD=N
2:DIM AT$(32):AT$="A THOUGHT IS FRAMED I
N YOUR MIND":ST=H1:PI=999:SF=N1
80 DATA IN THE CREW'S QUARTERS,LINED HIT
H BUNKS,DSB,71114,IN THE RESEARCH LAB.
BY,BLUE BUTTON BY CLOSED BULKHEAD
81 DATA PF,0862$,IN THE SHUTTLE,BAY,BL
UE BUTTON ON WALL,P,1$,IN A SHUTTLE,WITH
-THINK CONTROL- BUTTON,0,2$
82 DATA OUTSIDE THE HULL,OF THE VESPOZIA
N,IN THE CAPTAIN'S CABIN,OC,619$,IN
THE NAVIGATION AND COMPUTER ROOM
83 DATA AFUP,117105$,ON THE BRIDGE,,AU
618$,ON VOICES FAR UNDER,A PURPLE SKY,TE,
313,AT VESPOZIAN'S FUEL CORE
84 DATA I CAN FEEL HEADS,189$,IN A META
L GANGWAY WITH A,DOOR,PO,38812$,IN A S
UIT ROOM,P,10,IN A SECRET CONTROL ROOM
85 DATA WITH DUPLICATE CONTROL,0,10,ON Y
IN MY BUNK - IT HAS CLEAR
86 DATA SHEETS & LARGE PILLOW,U,8$,AUTO-
SHUTTLE,,2,-2,STRANGE DEVICE,1,2,SPLYPS$,
89,2,CRAHLLWAY,99,-2,ASBESTOS SUIT

```

DDDD


```

87 DATA 11,2,SPACE SUIT,11,2,METAL CONTRA
NER,5,2,FUEL CYLINDER,9,2,INSULATED TON
95,1,2,CAP'N BEZEL,5,2,GRKTR,6,2
98 DATA MACHIN,7,2,DISK 005,66,2,DISK 0
01,1,2,DISK 002,7,2,DISK 003,5,2,DISK 00
4,6,2,KEY,12,2,GLOWING ROCK,99,2
99 DATA FUNUS,LITTLE FUNUS,GYRATES,ROTH,
BILGEN,GREATER BILGEN,OUTER FUNUS,FAR FU
NUS,VUSES FAR,MID VUSES,VUSES NEAR
90 DATA VUSES
100 ? , " Press any key ":GET IN1,J1?
101 POKE 752,N1:POKE 82,M4:GOTO 1600
1000 IF S1&S6,S6="" THEN S6=S6-N1:S1$
=S1&N1+S6:GOTO 1000
1010 RETURN
1100 S6=LNB:S1$=NB&S6&N1+S6&N1+S6&N1+
N1:GOSUB 1000:RETURN
1600 Q&Q2A,Q2B="COMPUTER & VIDEO GAMES
":Q&Q7,128="WELCOMES YOU TO THE":Q&Q12
9,160="SEVENTH EMPIRE"
1800 IF PN=N5 AND PL=N9 THEN RT=N5:GOTO 1
900
1810 IF PK(N5) THEN RT=N
1900 SF=N:IF PK(7)=9 OR (PK(N5)=9 AND C(N5
)>N2) THEN SF=N1
2000 IF PU=N3 AND C(N2)=99 THEN PK(N2)=N4
2100 IF PN=N2 AND C(N2)=N4 AND C(N4)>N5
THEN GOSUB 1900:GOTO 2250
2200 IF C(N5)>N3 AND C(N5)=9 THEN C(N5)=
N4:PF=PF+2000:Q&Q7,128="NEW FUEL LOADE
D"
2300 CT=CT+1:IF ST<N1 THEN 2400
2310 JE=JE+1:IF JE<25 THEN 2400
2320 JE=JE-25:PU=PU+N1? " "
2330 IF PU=CD THEN ST=N2:PF=PF-100? "UE
SPAZIAN ORBITING " :NB&PU&N1,PU&N1+
LNB:GOTO 2390
2340 ? "UESPOZIAN PASSING " :NB&PU&N1+
N1,PU&N1+LNB
2400 GOSUB 18900
2400 IF RT=N5 THEN PK(9)=99:PK(10)=N6:GOTO
2500
2410 IF PN=N5 AND RT=N THEN PK(9)=N5:PK(10
)=N5
2500 IF CT>200 THEN CT=N1:CY=CY+N1
2600 IF CD=PU THEN ST=N2
2700 OD$="BEARING ON":IF ST=N2 THEN OD$=
"ORBITING"
2800 IF PN=9 AND C(N4)>N4 THEN 22100
2900 IF PU=N2 AND PN=N4 AND PK(12)=99 THE
N PK(12)=N4
3000 IF PK(N2)=13 THEN PK(N2)=88:PI=CY:Q&Q
97,128="POLYPS WASH INTO THE ROCKS"
3100 IF CY>PI+19 THEN PK(18)=13:PI=CY
3200 IF C(N1)=PN AND C(PN)=90 OR PN=13) AN
D (PK(18)>13 OR PK(N5)>13) THEN 3220
3210 GOTO 3300
3220 Q&Q7,128="SWITCH STARTS MOTOR. DR
ILL " :Q&Q129,168="ENGAGES AND SPRAYS DUS
T"
3300 IF PK(18)=13 AND PK(N1)=13 AND PK(N6)=
13 AND C(N6)=N2 THEN 3320
3310 GOTO 3400
3320 PK(18)=88:Q&N6&N1,N6&N1+L0="FUE
L CONTAINER: C(N5)=N3:Q&Q97,128="SWITCH
STARTS MOTOR. DRILL"
3330 Q&Q129,168="ENGAGES AND FILLS CONT
AINER"
3400 IF PK(17)=55 THEN C(N3)=N3
3500 IF C(N4)>N3 AND (PN=N1 OR PN=N6 OR
PN=7 OR PN=10) THEN I6=I6+N1:GOTO 3600
3510 I6=N
3600 IF IF=N THEN PK(19)=PN:IF I6=N5 THEN
6050:1900:GOTO 2200
3700 IF PK(19)=PN THEN IF INT(RND(N)*7)=N
3 THEN Q&Q33,64="EVER GET THE FEELING..
"
3900 IF PK(N4)>88 AND PK(N4)>PN AND PK(N4
)>55 AND PK(N4)>11 AND PK(N4)>66 THEN P
(N4)=88:GOTO 3990

```

```

3910 IF PK(N5)>PN AND PK(N5)>88 AND PK(N5
)>55 AND PK(N5)>11 AND PK(N5)>66 THEN P
(N5)=88:GOTO 3990
3920 GOTO 4100
3990 Q&Q33,64="STRANGE FEELING..."
4100 IF C(N3)=N2 AND PK(17)>55 AND PK(17
)>66 AND PK(17)>99 THEN 4120
4110 GOTO 4300
4120 PK(17)=88:Q&Q33,64="STRANGE, SOMETH
ING SEEMS MISSING":C(17)=N3
4300 IF PK(19)=N1 AND PN=N1 AND K1=14 THE
N GOSUB 1900:GOTO 2200
4400 IF PN=N6 OR PN=7 OR PN=10 OR PN=N1
THEN PK(10)=88:IF INT(RND(N)*3)=N2 THEN
PK(10)=PN
4600 IF PK(17)=55 AND PK(N1) AND PK(N10) A
ND C(17)>N2 THEN GOSUB 1900:GOTO 2310
4700 IF C(N3)=N3 AND PK(N1) AND PK(N2) TH
EN GOSUB 1900:GOTO 2320
4800 EX$="" :FOR I=N1 TO LE:SP=PN&I+1
4900 IF EK(S6,S6)="P" THEN EK&LEK&EX$>
N1="PORT."
5000 IF EK(S6,S6)="S" THEN EK&LEK&EX$>
N1="S" :BOARD,
5100 IF EK(S6,S6)="F" THEN EK&LEK&EX$>
N1="FOR'D."
5200 IF EK(S6,S6)="A" THEN EK&LEK&EX$>
N1="AFT."
5300 IF EK(S6,S6)="U" THEN EK&LEK&EX$>
N1="UP."
5400 IF EK(S6,S6)="D" THEN EK&LEK&EX$>
N1="DOWN."
5500 IF EK(S6,S6)="O" THEN EK&LEK&EX$>
N1="OUT."
5600 NEXT I
5700 II=N:S1$="VISIBLE: " :FOR I=N TO 10:
IF PK(I)=PN THEN OS$=Q&I&L0+N1,I&L0+L0:
S6=L0:GOTO 5800
5710 GOTO 6000
5800 IF OS&S6,S6="" THEN S6=S6-N1:OS$
=OS&N1,S6:GOTO 5800
5810 IF LEK(S1$)>LEK(OS$)>X29 THEN 5850
5820 IF LEK(S1$)>X32 THEN S1$=LEK(S1$)+N1
:GOTO 5820
5830 US&I&L1+N1,I&L1+L1=S1$:I=I+N1:
S1$="":GOTO 5810
5850 S1$=LEK(S1$)+N1:OS$=S1$>LEK(S1$)+N1
:GOTO 5810
5860 NEXT I:S1$=LEK(PN&N1+N1,PN&N1+L1)
6001 S6=LEK(US$):IF S6<288 THEN US&S6+N1)
=" " :US&288="" :US&S6+N2=US&S6+N1)
6002 IF S1$>LEK(S1$)>N1 THEN S1$=S1$>N1
:LEK(S1$)-N1:GOTO 6002
6005 ? "I AM ",S1$:? L1&PN&N1+N1,PN&N1
+L1:)?
6010 IF LEK&EX$>N THEN ? "EXITS: ",EX$:
?
6100 IF US(10,10)>X" THEN ? THEN US(N1,32)
6200 IF I=N1 TO 8:IF US&I&L1+N1,I&L1+L1)
<X>SP$ THEN ? US&I&L1+N1,I&L1+L1)
6300 NEXT I
6400 ? :IF AK$="" THEN ? "YOU SAID
":AK$:?
6500 FOR I=N1 TO N5:IF Q&I&L1+N1,I&L1+L1)
L1)>SP$ THEN ? Q&I&L1+N1,I&L1+L1)
6600 NEXT I
6700 US(N1)= " :US(288)= " :US(N2)=US:
? " " :WHAT NOW?
6800 PL=PN:Q&N1)= " :Q&L0)= " :Q&N2)=
Q&AS=" :A1$=" :A2$=" :A3$=" :A4$=" :EX$
=" :INPUT A$
6900 IF LEK&A$>N3 THEN 19400
6910 A2$=AK(N1,N3)
7000 IF A2$="INU" THEN 8900
7010 IF A2$="WAI" THEN 9300
7020 IF A2$="QUI" THEN 9600
7030 IF A2$="HEL" THEN 9800
7040 IF A2$="SLE" THEN 10400
7100 J=FOR I=N1 TO LEK&A$>IF AK(I,1)=
" THEN J=I:GOTO 99
7200 NEXT I:IF J=N THEN 20500
7210 A1$=AK(N1,J)-N1:A3$=AK(J,N1)

```

```

7200 IF LENK3%N3 THEN A3%LENK3%+N1
    = "GOTO 7220
7300 A4%=A3%(N1,N3):IF A1%="60" OR A2%="
    GET" THEN 8100
7400 X$=H$;Y$=A2%:GOSUB 18600:IF J=N TH
    EN S1$="I DON'T KNOW HOW TO ":"S1%(LENK S1
    $)+N1":A1%Q%Q2A,Q2B):S1%:GOTO 1800
7410 K1=(J-N1)/N3+N1
7500 X$=H$:Y$=A4%:GOSUB 18600
7600 IF J=N THEN S1$="WHAT IS A ":"S1%(LE
    NK S1$)+N1":A3%:S1%(LENK S1$)+N1)="?:Q%Q
    2A,Q2B):S1%:GOTO 1800
7700 K2=(J-N1)/N3
7900 ON K1 GOTO 8300,8600,9000,10100,101
    00,11700,12000,12200,12400,12600,12800,1
    3000,9800,14500,18200
9100 X$=H$:Y$=A4%:GOSUB 18600:IF J=N TH
    EN 19500
9110 X$=E$(PN%LE+N1,PN%LE+LE):S6=(J-N1)/
    N3+N1:Y$=H$Q(S6,S6)+GOSUB 18600
9120 IF J=N THEN 19500

```



likely the first shot struck home

```

8130 D$=Q$(S62+PN%LD+N1+(J-N1)*N2):PN=VA
    L(D$S62,S62+N1):D$=D$:GOTO 19600
8310 IF K2=19 THEN 19700
8320 IF K2=18 THEN 19400
8330 IF P(K2)=55 THEN 19000
8340 IF P(K2)<N THEN 19300
8350 IF P(K2)<N1 THEN 19400
8360 IF P(K2)=N1 THEN 20000
8370 IF P(K2)=N THEN 20400
8380 IF P(K2)=N THEN 20400
8390 IF P(K2)=N THEN 20400
8400 IF P(K2)=N THEN 20400
8410 IF IN=H$ THEN Q%(Q2A,Q2B)="I'M OVER
    LOADED ALREADY!":GOTO 1800
8420 IN=IN+N1:P(K2)=55:GOTO 19600
8600 IF K2=18 THEN 20100
8610 IF P(K2)<55 THEN 20100
8620 IF K2=N1 AND (P(K2)<8 AND P(K2)>13) THE
    N GOSUB 19000:GOTO 22600
8630 IN=IN+N1:IF PN=14 THEN P(K2)=66:Q%(
    S7,Q2B)="SLIPPED IT UNDER PILLOW":GOTO 1
    9600
8640 P(K2)=PN:GOTO 19600

```

```

8900 Q%(Q2A,Q2B)="I AM CARRYING: ":"IF IN
    =N THEN Q%(Q2A,Q2B)="NOTHING":GOTO 1800
9110 J=N2:S1$="I AM CARRYING: ":"FOR I=N
    TO 19
9000 IF P(K1)=55 THEN 9050
9010 NEXT I:S6=LENK Q%:IF S6<LQ THEN Q%(
    S6+N1)=":Q%(LQ):":"Q%(S6+N2)=Q%(S6+N1
    )
9020 GOTO 1800
9050 Q$=Q%(I%LQ+N1,I%LQ+LQ):S6=LQ
9060 IF Q$(S6,S6)=" " THEN S6=S6-N1:Q$=
    Q$(N1,S6):GOTO 9060
9070 IF LENK S1$+LENK Q$<X29 THEN 9100
9080 IF LENK S1$<X32 THEN S1%(LENK S1$)+N1
    )=" ":GOTO 9080
9090 Q%(J%LL+N1,J%LL+LL)=S1$:J=J+N1:IF J
    =N6 THEN I=18:S1$="":GOTO 9010
9095 S1$="":GOTO 9070
9100 S1%(LENK S1$)+N1)=Q$(S1%(LENK S1$)+N
    1)":"Q%(J%LL+N1,J%LL+LL)=S1%:GOTO 901
    0
9300 CT=CT+15:IF ST=N1 THEN JE=JE+15
9400 GOTO 19600
9600 Q%(Q2A,Q2B)="ALWAYS LOOK AROUND AND
    "Q%(Q2A,Q2B)="EXAMINE THINGS. TRY WORDS"
    :Q%(Q2A,Q2B)="LIKE INSERT, LIFT, WAIT..."
    "
9610 GOTO 1800
9900 IF K2<20 OR PN<14 THEN 19400
9810 Q%(Q2A,Q2B)="NOTHING!":FOR I=N TO 1
    8:IF P(K1)=66 THEN P(K1)=14:Q%(Q2A,Q2B)="I
    T WAS STILL THERE!"
9900 NEXT I:GOTO 1800
10100 IF K2<23 THEN 10400
10110 IF PN=7 THEN Q%(Q2A,Q2B)="I SEE BU
    TTON MARKED":Q%(Q2A,Q2B)="THINK CONTROL-
    ":GOTO 1800
10120 IF PN=10 AND E$(K4,K4)=" " THEN E$(
    K4,K4)="L":Q%(Q2A,Q2B)="HOW!":GOTO 1014
    0
10130 GOTO 10200
10140 S1$=L1%(10%LL+N1,10%LL+LL):S6=32
10150 IF S1%(LENK S1$)=" " THEN S6=S6-N1
    :S1$=S1%(N1,S6):GOTO 10150
10160 S1%(LENK S1$)+N1)=" " AND HIDDEN BULK
    HEAD:L1%(10%LL+N1,10%LL+LL)=S1%:GOTO 18
    00
10200 IF PN=9 AND E$(K3,K3)=" " THEN E$(
    K3,K3)="C":P(K3)=9:Q%(Q2A,Q2B)="AHA!":G
    OTO 1800
10210 IF PN=N6 THEN Q%(Q2A,Q2B)="COURSE
    DATA ON SCREEN":GOTO 1800
10300 IF PN=N2 THEN 10400
10310 IF C(N)=N3 THEN Q%(Q2A,Q2B)="INNER
    DOOR OPEN":Q%(Q2A,Q2B)="OUTER DOOR CLOS
    ED":GOTO 19600
10320 IF C(N)=N4 THEN Q%(Q2A,Q2B)="INNER
    DOOR CLOSED":Q%(Q2A,Q2B)="OUTER DOOR OP
    EN":GOTO 19600
10400 IF K2=19 THEN 19700
10410 IF K2=N1 THEN 10500
10420 IF P(K1)<55 AND P(K1)<N THEN 19
    700
10430 Q%(Q2A,Q2B)="IT HAS HOLLOW CYLINDR
    ICAL CUTTER":Q%(Q2A,Q2B)="AND SENSITIVE P
    RESSURE SWITCH":GOTO 1800
10500 IF (PN=N1 OR PN=N2) AND K2=22 THEN
    Q%(Q2A,Q2B)="SIGN -AIRLOCK CONTROL-":G
    OTO 1800
10600 IF K2(17 AND K2(21) THEN IF P(K2)<X
    55 THEN 20100
10610 IF K2(17 AND K2(21) THEN ON K2-11 G
    OTO 11100,11200,11300,11400,11500
10700 IF K2=20 AND PN=14 THEN Q%(Q2A,Q2B)
    )="LOOKS STRANGELY LUMPY...":GOTO 19600
10800 IF K2=24 AND PN=N6 THEN 20700
10900 Q%(Q2A,Q2B)="NOTHING SPECIAL":GOTO
    19600
11100 Q%(Q2A,Q2B)="LABEL -VUSES-":GOTO 1
    800
11200 Q%(Q2A,Q2B)="LABEL -POLYPS-":GOTO
    1800
11300 Q%(Q2A,Q2B)="LABEL -FUNUS-":GOTO 1

```

```

800
11400 QK(Q2A,Q2B)="LABEL -CONFIDENTIAL-"
:GOTO 1800
11500 QK(Q2A,Q2B)="LABEL -BLOODLINE-":GOTO
TO 1800
11700 IF K2<21 THEN 19400
11710 IF PN<10 THEN 19900
11720 IF C(17)=N2 THEN QK(Q2A,Q2B)="LOCK
ED!":GOTO 1800
11730 IF C(17)=N4 THEN QK(Q2A,Q2B)="ALRE
ADY OPEN!":GOTO 1800
11740 IF P(7)=10 THEN 22000
11800 C(17)=N4:IF E$(43,43)=" " THEN E$(
43,43)="R":GOTO 19600
11810 E$(44,44)="R":GOTO 19600
12000 IF K2<21 THEN 19400
12010 IF PN<10 THEN 19900
12020 IF C(17)=N2 THEN 20300
12030 IF P(17)<55 THEN 20000
12040 C(17)=N3:GOTO 19600
12200 IF K2<21 THEN 19400
12210 IF PN<10 THEN 19900
12220 IF C(17)<30 OR P(17)<55 THEN 200
00
12230 C(17)=N2:GOTO 19600
12400 IF K2<21 THEN 19400
12410 IF PN<10 THEN 19900
12420 IF C(17)<N4 THEN 20000
12430 C(17)=N3:E$(44,44)=" ":GOTO 19600
12600 IF K2<N4 AND K2<N5 THEN 19400
12610 IF P(K2)<55 THEN 20100
12620 IF C(N4)=K2 THEN QK(Q2A,Q2B)="HAT
S THIS I'M HEARING THEN?":GOTO 1800
12630 IF C(N4)<N2 THEN S1="HEARING ":S1
LEAK S1+N1+N5QK(CN4,N1,N1,CN4,N1,N1
0-7):QK(Q2A,Q2B)=S1:GOTO 1800
12640 CN4=K2:QK(K2,N1,N1,N1,N1,N1,N1,N1
):GOTO 19600
12800 IF (K2<N4 AND K2<N5) OR C(N4)=N2
THEN 20200
12810 C(N4)=N2:QK(K2,N1,N1,N1,N1,N1,N1,N1
):GOTO 19600
13000 IF K2=19 THEN 19700
13010 IF K2<12 OR K2>16 THEN 19400
13020 IF P(K2)<55 THEN 20100
13030 IF PN<N6 THEN QK(65,96)="NO COMPU
TER TO TAKE IT":GOTO 1800
13100 IF P(10)=N6 AND K2>11 AND K2<17 TH
EN GOSUB 19000:GOTO 23000
13200 ? " ":S1$=QK(K2,N1,N1,N1,N1,N1,N1,N1
):GOSUB 1000
13220 ? S1$:" SPINS IN ITS DRIVE..."FOR
I=N TO 100:NEXT I ? " "
13230 ON K2-11 GOTO 13300,13500,13700,13
900,14100
13290 ? " "-VUSES SYSTEM-":? "STAR SYSTEM
ADJACENT-":? "TO FUNUS. HAS 3 PLANETS"
13310 S62=10:GOSUB 1100
13320 ? S1$:" - BALL OF FIRE":S62=9:GOSU
B 1100
13330 ? S1$:" - INHABITED BY MINING-":?
COLONY. NO FINDS"
13400 S62=9:GOSUB 1100: ? S1$:" - REMOTE
DEAD PLANET":GOTO 14300
13500 ? " "-POLYPS-":? "FREQUENT GALAXY IN
MILLIONS-":? "AROUND ENERGY-RICH PLANETS
"
13510 ? " "-REGENERATE EVERY 20 YEARS-":? "
ACTIVE POLYPS CAN TURN DEAD-":? "PLANET I
NTO GREENHOUSE-EFFECT"
13520 ? " "-PLANET, RICH IN STELLAR ENERGY"
: ? "AFTER 20 YEARS...":GOTO 14300
13700 ? " "-FUNUS SYSTEM-":? "STAR WITH 7
PLANETS-":? "IN ORDER FROM FUNUS-":S62=
N1:GOSUB 1100
13710 ? S1$:" - (MOLTEN ROCK)":S62=N2:GOS
UB 1100: ? S1$:" - (UNINHABITED)":S
62=N3:GOSUB 1100
13720 ? S1$:" - (GREENHOUSE-EFFE

```

```

CT7:S62=N5:GOSUB 1100: ? S1$:"
INHABITED"
13800 S62=N5:GOSUB 1100: ? S1$:"S62=N6:GOS
UB 1100: ? S1$:" - (ICY WASTE)":S62=7:GOS
UB 1100: ? S1$:" - (LUMP OF ROCK)"
13810 GOTO 14300
13900 ? " "-CAPTAIN'S LOG-":? "BEARING TO
DOCK WITH BLOODLINE-":? "STARGATE IN 6YRA
TES ORBIT."
13910 ? " "-MISSION ACCOMPLISHED- D'TARAN'S
: ? "EXPERIMENTS CONFIRM POLYPS-":? "THEOR
Y. PITY BLOODLINE WILL"
13920 ? " "-BENEFIT-":? "GLAD TO GET SHOT O
F THIS-":? "COREW SUSPECT GRARKA IS-":? "B
LOODLINE SPY, NACHEN."
13930 ? " "-THE TARTHEN LIZARD GIVES ME-":?
"THE CREEPS. CAN'T GET RID OF-":? "HIN-
ONLY PILOT ABOARD!":GOTO 14300
14100 ? " "-BLOODLINE-":? "TYRANNICAL ENPI
RE KEEPING-":? "CONTROL ON ENERGY SUPPLIE
S-":? "FROM GREENHOUSE-PLANETS -"
14200 ? " "-ON WHICH INTERSTELLAR TRAVEL-":?
"DEPENDS-":? "STARGATE IN FUNUS SYSTEM"
14210 ? " "-CAN SUMMON CRUISERS TO-":? "QUEL
L REBELS."
14300 ? " "-PRESS ANY KEY TO CONTINUE.
":GET #N1,S61:QK(Q2A,Q2B)="YOU REMOVE THE
DISK...":GOTO 1800
14500 IF K2<22 THEN 19600
14600 IF PN=7 THEN IF K2=7 THEN 22000
14610 IF PN=7 THEN QK(Q2A,Q2B)="NACHEN,
THE LIZARD PILOT-":QK(97,128)="RESTRAINS
YOU":GOTO 1800
14700 IF PN<12 THEN 16500
14710 IF PN<12 THEN 22200
14720 GOSUB 18000
14800 ? " "-HEADING, CRYOGEN, LASER OR END"
14900 GET #N1,S61:Z$=CHR$(S61):IF Z$="H" T
HEN 15100
14910 IF Z$="C" THEN 15600
14920 IF Z$="L" THEN 15000
14930 IF Z$="E" THEN 19600
14940 GOTO 14900
15100 J=99:GOSUB 18000: ? "CURRENTLY "J00
$": ? "NB$(CORLNB+N1,CORLNB+LNB):? "NEW
DESTINATION";
15110 INPUT A$:IF LEN(A$)=N THEN 15110
15120 IF LEN(A$)<LNB THEN A$=LEN(A$)+
N1=" ":GOTO 15120
15130 FOR I=N TO 11:IF A$=NB$(I,LNB+N1,
I,LNB+LNB) THEN J=I
15200 NEXT I:IF J=99 THEN ? "A$ ";NOT
ON DATABASE-":FOR I=N TO 100:NEXT I:GOTO
14700
15300 IF J=CD THEN 14700
15310 J=N1:IF J>PU THEN J=N1
15400 ST=N1:J=CD:J=PF:PF=100: ? " "-CO
URSE CORRECTION APPLIED"
15410 ? " "-NEW BEARING-":NB$(CORLNB+N1,CD
+LNB+LNB): ? "FUEL":
:GOSUB 18000:IF PF<N1 THEN 22200
15420 GOTO 14700
15600 GOSUB 18000: ? " "-CRYOGENIC CONTROL
": ? "ENERGY TO FREEZE CREW - 10 PR/CY":
? "HOW MANY CLONE-YEARS FREEZE?"
15610 TRAP 15610:INPUT S61:TRAP 40000
15620 IF S61=10:PF THEN ? " "-FUEL DEFICIENC
Y-": ? "INTERLOCK OVERRIDE":GOTO 19200
15700 PF=PF-10:SG1:CY+SG1: ? "STAND BY-":
GOSUB 10800:GOSUB 19000:PN=14:QK(Q2A,Q2B
)="YAHN...":GOTO 1800
15800 GOSUB 18000: ? " "-LASER CONTROL-":?
15900 ? " "-TARGET ==>":
15901 INPUT A$:IF LEN(A$)=N THEN 15901
15902 IF A$="STARGATE" THEN 16100
15903 IF LEN(A$)<LNB THEN A$=LEN(A$)+
N1=" ":GOTO 15905
15910 J=99:FOR I=N TO 11:IF NB$(I,LNB+N1,
I,LNB+LNB)=A$ THEN J=I:GOTO 15920 NEXT I
16000 IF J=99 THEN ? "A$ ";NOT ON DATA
SE-":GOSUB 18000:GOTO 14700
16100 ? " "-TARGETED ON "A$":FOR I=N TO 20

```


Presentation on the

Taming the beast by Nat and Franklin

Giving your Dragon games a professional look are two of Salamander Software's top programmers.

Writing under the obscure title of Nat and Franklin are Peter Neale and one of Salamander's other programmers who wishes to remain anonymous.

Peter Neale is Texas-born and has been involved in computing since high school in the States, where he learnt most of skills by playing Star Trek on a remote teletype link to the University of Texas computer.

He arrived in England in 1974 to attend the University of Sussex and then spent four years as an IBM mainframe programmer, two years as an accounts programmer and two as a system programmer.

Finally he quit to set up Salamander Software with wife and friends in November 1982. He has a hand in designing most of the company's titles and was responsible for Dragon Trek and Wizard War.

Franklin claims to have been raised on Betelgeuse V but his Earthly programs include: Grand Prix, Starjammer, Gridrunner and Franklins Tomb. He is currently working on the sequels to Franklin's Tomb and the first will be called Lost in Space.

Taming the Beast

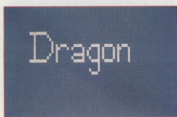
Having spent many hours in the high street jungle, you finally managed to cage yourself a Dragon. But now that it's locked up in the back room, what do you do with it?

Feed it human sacrifices on the full moon? Not if you want to keep your friends.

Subject it to the whims of other Dragon Masters? This can provide hours of harmless amusement.

But what you really want to do is to become a Dragon Master yourself, learning to tame and control the majestic beast. There is only one way to do this. Start writing programs.

There is one thing that can turn a good game into a great game, presentation. A player's first impression of a game is based almost solely upon what he sees, and this will greatly influence the player's final



judgement.

A cluttered screen, badly presented with difficult to read information, or boring graphics, can turn a player off, and he may grow to dislike what would otherwise be an excellent game.

The hardest and possibly most misunderstood aspect of presentation is printing. If you bought a book you wouldn't expect to find words split haphazardly, crooked margins and spelling mistakes.

Neatness does, after all, count. When you are planning your program, lay all the text out on a print grid like the one in the Dragon manual. Centre the text in the middle of each line or insert extra spaces to make the margins even. It takes more time, but the results are worth it.

To further improve the appearance of your text, try printing everything in a greenbox on a coloured background. This technique is particularly effective. When printing columns of numbers, use the PRINT@ and the PRINT USING so the text is printed exactly where you want it. Using the semi-colon (";") in your PRINT statements allows you to print on any line without destroying the rest of the line. Use all these techniques together and you will find that your program will begin to take on a professional appearance.

It can be very useful to POKE characters directly onto the screen instead of printing (the text screen is located between addresses 1024 and 1535). Sample program 1 shows you how you can get the complete ASCII characters set inverse video. The inverted alphabet is available normally by pressing Shift and @. Other characters (e.g. & and %) can only be inverted by POKEing the correct values directly onto the screen. A particularly useful location is 1535, the last screen position. If you print a character at this location, the screen will automatically scroll up, but if you POKE the character in, you can avoid this.

The low resolution graphics on the

```
10 CLS
20 FOR I=12 TO 51 : RESET(1,2) : RESET(1,17) : NEXT I
30 FOR I=2 TO 17 : RESET(12,1) : RESET(51,1) : NEXT I
40 FOR I=13 TO 50 : SET(1,3,5) : SET(1,16,5) : NEXT I
50 FOR I=3 TO 16 : SET(13,1,5) : SET(50,1,5) : NEXT I
60 GOSUB260
70 PRINT@78,"MENU";
80 PRINT@135,"PRESS 1 FOR POKE";
90 PRINT@167,"PRESS 2 FOR PRINT";
100 PRINT@199,"PRESS 3 FOR QUIT";
110 AS=INKEY$
120 IF AS="3" THEN CLS:END
130 IF AS="2" THEN BS="PRINT" : GOTOD160
140 IF AS="1" THEN BS="POKE" : GOTOD160
150 GOTOD110
160 GOSUB260
170 PRINT@105,BS;" EXAMPLES";
180 FOR I=0 TO 255
190 PRINT@423,USING"ASCII VALUE $$$";I;
200 IF AS="1" THEN POKE1465,I ELSE PRINT@441,CHR$(I);STRING$(8,CHR$(175));
210 PRINT@201,"PRESS ANY KEY";
220 BS=INKEY$
230 IF BS="" THEN 220
240 NEXT I
250 GOTOD10
260 FOR I=71 TO 261 STEP 32 : PRINT@1,STRING$(18," "); : NEXT I
270 RETURN
```


DRAGON

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```
CLS
READ A,B
IF A=99 THEN 70
FOR I=1 TO 10 : NEXT I
GOTO20
A$=INKEY$
IF A$="" THEN 70
CLS
END
```

```
DATA8,5,8,6,8,7,8,8,8,9,8,10,8,11,8,12,6,4,7,4,8,4,9,4,10,4,11,4,12,4,13,4,14,5,15,6,16,7,16
16,9,16,10,15,11,14,12,13,13,12,13,11,13,10,13,9,13,8,13,7,13,6,13
DATA18,8,18,9,18,10,18,11,18,12,18,13,19,9,20,8,21,8,22,8,23,9,25,9,26,8,27,8,28,8,29,8,30,9
10,30,11,30,12,30,13,29,13,28,13,27,13,26,13,25,12,26,11,27,11,28,11,29,11,36,8,35,8,34,8,33
12,10,32,11,33,12,34,13,35,13,36,13,37,8,37,9
DATA37,10,37,11,37,12,37,13,37,14,37,15,37,16,36,17,35,17,34,17,33,16,40,8,41,8,42,8,43,8,44
44,10,44,11,44,12,43,13,42,13,41,13,40,13,39,12,39,11,39,10,39,9,46,8,46,9,46,10,46,11,46,12,
43,47,9,48,8,49,8,50,8,51,9,51,10,51,11,51,12,51,13,99,99
```



effect in title pages. Sample program 2 is an example of the latter, where the X and Y co-ordinates, which are to be set on, are stored in DATA statements. As each position is set on, the impression of writing is given.

There's one thing to be careful of when using the low-res graphics, each character position is divided

```
10 SP$="R20F66L20U12H4R6F4BD1264L6E4"
20 PMODE1,1
30 FCLSS
40 SCREEN1,0
50 FOR X=10 TO 100 STEP 4
60 A$="BM"+STR$(X)+"",40C3"+SP$
70 B$="BM"+STR$(X+4)+"",40C2"+SP$
80 DRAWA$
90 DRAWB$
100 PLAY"TZ3SL25305A"
110 NEXT X
120 DRAW"BM110,192C4U140"
130 FOR X=1 TO 10 : NEXT X
140 DRAW"CSD140"
150 COLOR4,3
160 FOR R=2 TO 36 STEP 2
170 CIRCLE(110,52),R
180 NEXT R
190 COLOR3,3
200 FOR R=2 TO 36 STEP 2
210 CIRCLE(110,52),R
220 NEXT R
230 GOTO230
```

could fill a book. The best way to fully appreciate the hi-res graphics is to sit down and try different things out. The DRAW command is especially powerful. By setting up a few DRAW strings at the beginning of your program you can very easily create animation effects. The only thing to be wary of is DRAWing off the edge of the screen, as this will distort your picture. Sample program 3 illustrates both the DRAW command, and the effects you can get using FOR/NEXT loops. The expanding CIRCLE used for the explosion could be easily changed to look like an approaching tunnel or planet.

Treat your Dragon with respect and it will be a true and loyal friend.

Notes on sample 1

- Lines 10 - Clear screen
- 20-30 - Draw box on text screen
- 60 - Fill box subroutine
- 70-100 - Print menu choices
- 110-150 - Wait for option to be selected
- 160 - Fill box
- 160-250 - Put character to screen and wait for key press, then put another character on etc.
- 260-270 - Subroutine to fill box with green.

Notes on sample 2

- Lines 10 - Clear screen
- 20-60 - Read Data and set points
- 70-100 - Wait for key press for end
- 110-130 - Data. Format is X co-ordinate, Y co-ordinate etc.
- Value of 99 for X means end of data.

Notes on sample 3

- Lines 10 - DRAW string for spaceship
- 20-40 - Set up Hi-Res screen
- 50-110 - Move spaceship across screen
- 120-140 - Draw fire line to ship
- 150-220 - Draw explosion

Dragon tend to be vastly under-rated and generally pooch-pooched by people. Don't make the same mistake. The great advantage of the low-res graphics is that you can get all nine colours and text on the same screen.

Using the low-res graphics, you can put borders around text (as in sample program 1), put simple animation in instructions (always a winner), or they can be used to great

into four pixels. Within one character position, you can have only one colour and black, so be sure to plan well in advance.

High resolution graphics are a different kettle of fish indeed. The number of different ways of displaying anything on the hi-res screens



```
271 J=J3: J=J34
272 IF J<36 THEN J=35
273 IF J>168 THEN J=168
274 IF J=234 THEN J=234
288 PUT(J,JJ)←(J+28,JJ+28),R,PSET
281 P=PEEK(5288)
290 IF P=254 OR P=126 THEN SOUND 190,2:GOTO388 ELSE290
300 REMCHECK JOYSTICK POSITIONS
310 IF J<18 AND J>8 AND J<100 AND J>76 THEN P(1)=0:FLS
320 IF J<72 AND J>48 AND J>76 AND J<100 THEN P(2)=0:FLS
330 IF J<117 AND J>89 AND J<100 AND J>76 THEN P(3)=0:FLS
340 IF J<171 AND J>144 AND J>76 AND J<100 THEN P(4)=0:FLS
350 IF J<216 AND J>190 AND J>76 AND J<100 THEN P(5)=0:FLS
360 IF J<100 AND J>152 THEN 380
370 IF J<144 AND J>152 THEN 380
371 GOTO 280
380 NEXT R
390 REMSCORES
400 FOR X=1 TO 100: NEXT X: SOUND 20,0
400 CLS
510 PRINT80,"PLAYER'S NAME:";NAME$(C)
520 PRINT82,"SCORE:";TTAI(C)
530 FOR X=32 TO 63:PRINT8X,CHR$(143+96):NEXT X
540 PRINT86,"ONES (ADD ALL THE ONES)";IF SC(C,1)=1 THEN PRINT86,"u"
550 PRINT88,"TWO (ADD ALL THE TWOS)";IF SC(C,2)=1 THEN PRINT88,"u"
560 PRINT90,"THREES (ADD ALL THE THREES)";IF SC(C,3)=1 THEN PRINT90,"u"
570 PRINT92,"FOURS (ADD ALL THE FOURS)";IF SC(C,4)=1 THEN PRINT92,"u"
580 PRINT94,"FIVES (ADD ALL THE FIVES)";IF SC(C,5)=1 THEN PRINT94,"u"
590 PRINT96,"SIXES (ADD ALL THE SIXES)";IF SC(C,6)=1 THEN PRINT96,"u"
600 PRINT98,"THREE OF A KIND(ALL THE DICE)";IF SC(C,7)=1 THEN PRINT98,"u"
610 PRINT100,"FOUR OF A KIND(ALL THE DICE)";IF SC(C,8)=1 THEN PRINT100,"u"
620 PRINT102,"FULL HOUSE (SCORE 25)";IF SC(C,9)=1 THEN PRINT102,"u"
630 PRINT104,"LOW STRAIGHT (SCORE 30)";IF SC(C,10)=1 THEN PRINT104,"u"
640 PRINT106,"HIGH STRAIGHT (SCORE 40)";IF SC(C,11)=1 THEN PRINT106,"u"
650 PRINT108,"YAKTZE (SCORE 50)";IF SC(C,12)=1 THEN PRINT108,"u"
660 PRINT110,"CHANCE (ADD ALL THE DICE)";IF SC(C,13)=1 THEN PRINT110,"u"
670 J=JOYSTK(0):J=JOYSTK(1)
671 JJ=INT(JJ/4):IF JJ=15 THEN JJ=14 ELSE IF JJ<2 THEN JJ=2
672 PRINT8J32+1,"E"
673 PRINT8J32+8,"J"
674 P=PEEK(5288)
680 IF P=254 OR P=126 THEN SOUND 190,2:GOTO388 ELSE PRINT8J32+1,CHR$(143):PRINT8J32+38,CHR$(143):GOTO540
680 IF JJ=2 THEN CH=1
690 IF JJ=3 THEN CH=2
700 IF JJ=4 THEN CH=3
710 IF JJ=5 THEN CH=4
720 IF JJ=6 THEN CH=5
730 IF JJ=7 THEN CH=6
740 IF JJ=8 THEN CH=7
750 IF JJ=9 THEN CH=8
760 IF JJ=10 THEN CH=9
770 IF JJ=11 THEN CH=10
```

BY MARK KERSHAW

YAKTZE

Runs on a Dragon 32 in 9K with one joystick

Initially and any, all or none of the dice may be thrown or saved on subsequent throws. Up to three throws are allowed to achieve any desired combination. One problem in computerising Yaktzee is the number of inputs needed for saving, throwing and deciding which combination to choose. It

would be easier in most cases to just throw the dice and forget the computer! The author has got round the problem beautifully by utilising the right joystick as cursor control. This clever trick has enabled hi-res displays of the dice and very easy inputs. All instructions are included.

Variables.

D(1)-D(5): array to store dice.
P(1)-P(5): array to save dice.
SC (C, CH): array to determine whether a player, C, has used a certain option, CH.
Name S (C): array to store names of players.
TTAI (C): array to store scores of each player.




```

1620 TTR(C)=TTR(C)+TTR
1640 SOC(0)=1
1650 TTR=0
1660 RETURN
1670 COUNT=0
1680 FOR X=1 TO 5
1690 IF D(X)>ODER THEN ODER=D(X)
1700 NEXT X
1710 FOR X=1 TO 5
1720 IF D(X)>ODER THEN D(X)=0
1730 NEXT X
1740 COUNT=COUNT+1:IF COUNT=2 THEN 1750 ELSE ODER=0:GOTO1680
1750 IF D(1)>D(2) AND D(2)>D(3) AND D(4)>D(5) THEN TTR=25 ELSE TTR=0
1760 TTR(C)=TTR(C)+TTR
1770 SOC(0)=1
1780 TTR=0
1790 RETURN
1800 CU=1:D=1
1810 G=0:G=0:G=0
1820 FOR X=1 TO 5
1830 IF D(X)>G THEN G=D(X)
1840 IF D(X)>E THEN E=D(X)
1850 NEXT X
1860 FOR X=1 TO 5
1870 IF D(X)>G+CU THEN 1890
1880 NEXT X:GOTO1900
1890 CU=CU+1:IF CU=4 THEN 1940 ELSE 1860
1900 FOR X=1 TO 5
1910 IF D(X)>E-D THEN 1930
1920 NEXT X:TTR=0:GOTO1950
1930 D=0:IF D=4 THEN 1940 ELSE 1900
1940 TTR=0
1950 SOC(0)=1
1960 TTR(C)=TTR(C)+TTR
1970 TTR=0:CU=0:D=0:E=0:G=0
1980 RETURN
1990 CU=1
2000 FOR X=1 TO 5
2010 G=D(X)
2020 IF D(X)>G THEN G=D(X)
2030 NEXT X
2040 FOR X=1 TO 5
2050 IF D(X)>G+CU THEN GOTO 2060
2060 NEXT X:TTR=0:GOTO2080
2070 CU=CU+1:IF CU=5 THEN 2070 ELSE 2030
2080 TTR(C)=TTR(C)+TTR
2090 SOC(0)=1
2100 TTR=0
2110 CU=0:G=0
2120 RETURN
2130 IF D(1)>D(2) AND D(2)>D(3) AND D(3)>D(4) AND D(4)>D(5) THEN TTR=50
ELSE TT PL=0
2140 TTR(C)=TTR(C)+TTR
2150 SOC(0)=1

```



```

2160 TTR=0
2170 RETURN
2180 TTR=D(1)+D(2)+D(3)+D(4)+D(5)
2190 TTR(C)=TTR(C)+TTR
2200 SOC(0)=1
2210 TTR=0
2220 RETURN
2230 REM:INSTRUCTIONS
2240 CLS:PRINT"YAHITZEE IS AN ADAPTATION OF THE POPULAR BOARD GAME.IT DIFFERS VER
Y LITTLE FROM THE ORIGINAL"
2241 PRINT#404,"(PRESS ANY KEY TO CONTINUE)"
2242 SCREEN 0:1
2243 AS=INKEY$:IF AS="" THEN 2243
2245 CLS:PRINT"THE IDEA OF THE GAME IS VERY LOGICAL.JUST MANOEUVRE THE JOYSTICK
INTO A SUITABLE POSITION AND PRESS THE FIRE BUTTON .TO SAVE A DICE SIMPLY POSITI
ON THE JOYSTICKOVER THE DICE AND FIRE".
2246 PRINT#404,"(PRESS ANY KEY TO CONTINUE)"
2247 SCREEN 0:1
2248 AS=INKEY$:IF AS="" THEN 2248
2249 AS=PRINT:PRINT:PRINT"U-A USED COMBINATION".PRINT:PRINT"YAHITZEE-5 DICE ALL
SAME NUMBER".PRINT:PRINT"FULL HOUSE-3 AND 2 DICE THE SAME".PRINT"HIGH STRAIGH-
L ON A RUN".PRINT:PRINT"LOW STRAIGHT-3OR MORE) ON A RUN"
2250 PRINT#404,"(PRESS ANY KEY TO CONTINUE)"
2251 SCREEN 0:1
2251 AS=INKEY$:IF AS="" THEN 2251
2252 RETURN
2253 DICE(X)=BM-0,-B0R14D14L14U13B+6,+B0R1G1R1"
2254 RETURN
2255 DICE(X)=BM-0,-B0R14D14L14U13B+2,+B0R1G1R1B+5,-I0R1G1R1"
2256 RETURN
2257 DICE(X)=BM-0,-B0R14D14L14U13B+11,+I0R1G1R1B+5,+B0R1G1R1B+6,+4R0R1G1
BM+0,-I0R1G1R1"
2258 RETURN
2259 DICE(X)=BM-0,-B0R14D14L14U13B+2,+I0R1G1R1B+0,-I0R1G1R1B+10,+B0R1G1
10B+5,+4R0R1G1R1B+0,-I0R1G1R1"
2260 RETURN
2261 DICE(X)=BM-0,-B0R14D14L14U13B+2,+I0R1G1R1B+0,-I0R1G1R1B+6,+B0R1G1
R1B+5,-I0R1G1R1B+10,+B0R1G1R1B+0,-I0R1G1R1B+10,+4R0R1G1
2262 RETURN

```

BEAT IT

**Tips for
tackling top
games**
by Eugene Lacey

It's a well known video gamers' maxim that the toughest ones are best.

Whilst agreeing with this wholeheartedly there is always a time in every gamer's life when a little assistance, or hint, is more than welcome.

The C&VG review team have been busy over the last few months playing their way to the bitter end of some of the toughest games you can get for the popular video games systems.

Here are their reports, hints and tips for scoring highly on some of the toughest games around.

PITFALL — FUN IN THE JUNGLE!

Pitfall was one of the smash hits of 1983 and voted Game of the Year at the Consumer Electronics Show — which is America's Chelsea Flower Show of video games, where all the major manufacturers show off their prize exhibits.

Pitfall Harry's Jungle Adventure takes you on a perilous search for the lost treasure of Enarc.

On your search you will encounter many dangers in the shape of crocodiles, snakes, scorpions, logs, and disappearing lakes.

You have just three lives and twenty minutes to locate all the Treasures of Enarc.

Control of Harry is simple. All you do is push the joystick in the direction you want him to move — right, left, or up and down the ladders that connect the two floors. Pressing the fire button makes Harry jump — which is the way he avoids obstacles.

The nasties have different strengths and some of them are easier to avoid than others. Generally — timing is the key to overcoming all of these obstacles, time your run and leap to the split second to get over them.

The other general tip is to keep a record of the screens that you visit, try to memorise them and note down all the obstacles that appear on each screen.

The first screen is easy, simply skip Harry across a stationary log and one hole and you are on your way to the next screen.

The first major hazard appears on screen three in the shape of a bog. Hop on to the vine — timing your leap carefully — and jump again as soon as you land on the far side of the bog to clear the log rolling towards you.

Toughest of all the jungle adversaries are the crocs. The only way to get across a croc infested lake is to use their heads as stepping stones. There are two ways to deal with the crocs — the slow safe way, and the fast risky way.

For the more cautious of you there is a safe spot at the back of each croc head where you are out of reach of those snapping jaws.

Daredevils may wish to attempt the fast method — time your jump so that Harry's last footstep on land takes place just as the crocodiles' mouths begin to close. If your timing is sharp enough you should be able to clear all three crocs in three quick hops.

A couple of easy obstacles follow the crocodiles and it is not until screen seven that you come across your first piece of treasure.

To claim the gold bar you must successfully negotiate a disappearing bog. The secret of getting past this obstacle is to position Harry in the space between the second number and the colon on the timer. When the bog begins to disappear make a dash to the right. This strategy is the best one to adopt for all disappearing bogs on other screens.

These tips if learnt thoroughly should enable you to deal with all the obstacles you encounter in the following screens.

For real speed in Pitfall you will have to learn when and where to use the underground tunnels. These take you through the jungle faster but be careful not to miss out on the treasure as well as the obstacles.

QUEST FOR THE RINGS

Quest for the Rings represented a totally new concept in games when it was launched last year.

The first ever board game come video game all in one. The theme is very Tolkienesque with demons, dragons, hidden rings, and strange powers.

The idea of the game is to find the 10 rings that have been hidden by the Ringmaster. Two people can play as a team against the forces of evil or there is also a single player version of the game.

The video part of the game is basically a maze chase affair. The various screens for this action are selected, by pressing the keys on the overlay giving you variously: The Dungeons, The Crystal Caverns, The Shifting Halls, and the Infernal Infernos.

Matching of partners is the key to success in the Quest. Pick partners that work well together, one to deal with the enemy, the other to dart in and grab the rings.

You can choose to be a Wizard, Phantom, Changeling or an Alien.

Each has different powers. The Warrior is armed with "Theor's Sword" which can slay adversaries that come at you on a horizontal plane only. The sword is useless if the creatures attack from above or below.

Wizards can cast spells which have the effect of temporarily immobilising enemies.

Phantoms can walk through walls and Changelings can become invisible altogether though both only move at half speed when in this state. Practising each of the four roles is the key to mastering Quest for the Rings, on the Philips G7000.

BURGERTIME — FAST FOOD!

All the food games that have appeared since Pacman, *Burgertime* must surely be the best.

It's fast food at its quickest as you score points in an attempt to assemble four hamburgers before the peppers, eggs and sausages catch you.

Burgertime is a master strategy maze game. You have to plan your route very carefully. Unlike Pacman you cannot go on long sweeping runs gobbling dots — as in this game it's not just simple dots and slow ghosts that are out to get you. Those pickles are really mean and the only defence you have against them is a limited supply of pepper.

Extra pepper can be earned by catching the tankards of beer and cartons of french fries that appear periodically.

The secret of success in *Burgertime* is to get the pickles to follow you, position them under a burger, lettuce leaf or bun and then splat — drop the morsel on their heads and send it crashing to the ground.

One tip for dealing with fried eggs is to turn and walk away from them once they have been peppered — don't walk through the points that appear, as this will cause the eggs to reappear.

As you move your way up through the screens the layout of the burgers gets more complex and you will need to think even harder about the route to take.

One of the most difficult parts of *Burgertime* is learning to control the chef with the disc controller and it may pay to spend an afternoon just steering the character around the screen to practice tight cornering.

Go — gorge yourself.

RAIDERS OF THE LOST ARK

It's just too damn tough: was many a gamers comment on Howard Warsaw's adaptation of the Stephen Spielberg blockbuster — *Raiders of the Lost Ark*.

The 13 screen of action with their assorted challenges has many of you stumped.

If you were one of those people, then help is at hand. But if you want the satisfaction of getting there for yourself then turn the page right now.

You are Indiana Jones — the hero of the game and in search of the Lost Ark of the Covenant.

The game begins in the entrance room which shows you a snake, and the famous whip. Pick up the snake and dash down screen to the market place before the snake gets you.

Once in the market place you must now assemble the items you will need for your adventure.

Items are picked up by moving Indy around the screen and simply touching the item you want. Get the magic whip first as this will give you immunity from the snakes. Also pick up a grenade, a key, and an eyepiece of steel.

Once these items are registered at the foot of the screen you are ready to enter the Temple of the Incidents. To do this you must blast a hole in the side of the entrance room with your grenade.

This needs to be a quick, clinical operation as once you have selected the grenade you have lost immunity from the snakes.

You will also have to remember to dart back to the

market place before the explosion takes place otherwise you will be blown to bits as well.

Pick up the timepiece in the Temple of the Incidents and head straight for the Blue Room — also known as the Room of the Shining Light. You will now find yourself trapped in one of the cells at the bottom of this room. This is your first opportunity to select the whip and blast a hole — Breakout style — in the wall of the cell.

Once you have escaped make a dash to the right towards the Treasure Room. Items to pick up here are many and the Egyptian Ankh — persistence is required to win the latter as the Gods are reluctant to part with such a valuable item easily.

You should now have in your possession the Ankh, two bags of money, the time piece, and the eyepiece. Go back to the Blue Room and get yourself trapped in one of the cells. Select the Ankh, press the button, and hey presto you are teleported to the Mesa Field.

From the Mesa you must find your way into the Map Room. The map will appear at the centre of the screen. Centre yourself on the map and move the selector dot to the timepiece and press the joystick fire button.

This will make the clock appear. Just before the hands of the clock are vertical select the eyepiece.

The sun will now flood in and if you look carefully through the eyepiece at the map you will be able to see a tiny flashing dot — in one of the mesas — this is the location of the Lost Ark of the Covenant.

So now you know where it is the next step is to go to the Black Market and buy a shovel which you will need for the dig.

Take the right exit from the Black Market and head for the Treasure Room — you will now need to recover the Ankh to take you back to the Mesa Field, and two more bags of money to buy a parachute.

Use the parachute to arrive in the Mesa — you are now very close to finding the Ark and to give you further help would only spoil the last most exciting scene of the game. Go to it Indy.

CENTPEDE — INSECT ATTACK!

Fun in a mushroom field can mean only one thing to video gamers — Centipede.

This arcade game caused a real wow in the arcades as it was the first game to demonstrate the full potential of trackball controllers.

The key to success in Centipede is to fire quickly and fire accurately.

Beware of low lying mushrooms as the Centipede moves down a row when it collides with a mushroom.

The secret is to clear just the right number of mushrooms — don't clear all of them as if you do fleas will begin to appear. You must learn to look at mushroom configurations and act accordingly. If a formation of mushrooms is enabling the Centipede to fall rapidly through a certain part of the screen blast them away to slow it down.

Not all mushroom formations are dangerous — some of them can actually be a bonus. The best example of this is the funnel formation in which the Centipede has to travel through a tunnel of mushrooms to advance down screen. If you position blaster in just the right position at the foot of the funnel you can completely annihilate the Cen-

tipede which is helpless to dodge your fire.

Large scores can only be picked up by blasting the spiders that drop out at you every so often — to score really highly let them get quite near to you before you let fire.

This policy can be a bit hairy in the later stages of the game when the action is much faster.

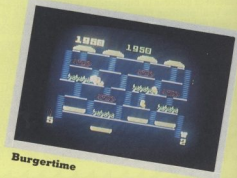
Centipede is a game of priorities — always pursue the highest point scoring possibility on the screen at any given time. Go for all the spiders, scorpions, and try to shoot the heads off the Centipedes.

One tip for getting Centipedes that are near to the bottom of the screen is to position yourself at the very bottom of the screen with one mushroom one row above you — when the centipede head comes in between let fire with all you've got — the rapid fire created by the mushroom and Centipede sandwich will enable you to blast the whole thing segment by segment till it is completely dead.

Be adventurous, take risks, and assert yourself.



Quest for the Rings



Burgertime



Demon Attack

DEMON ATTACK — TOUGH ALIENS

Demon Attack is arguably the toughest shoot 'em up type game available for the VCS.

No less than 84 waves of aliens are queueing up in this cartridge to attack your laser base.

This is the hybrid of two arcade games — space invaders and Phoenix, though unlike the official Atari Phoenix does not have the home base. The basic strategy is similar to invaders — slide and shoot.

Keep constantly on the move thus preventing the aliens from cornering you.

Pick off the low flying aliens first. If you kill these you may notice that the higher aliens flap around the screen harmlessly without firing back. You can now pick these off at your leisure.

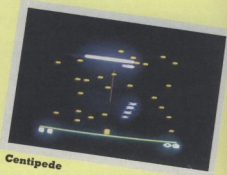
There are 10 game options in Demon Attack. You can choose one or two players, regular or advanced aliens, and whether or not to have guided missiles.

If you are playing the guided missile variation, be reminded that the laser base moves together with the missile so you must be careful not to guide your base into an oncoming missile as you pick off the aliens.

Speed and good hand-eye co-ordination are crucial to success in Demon Attack.



Raiders of the Lost Ark



Centipede

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3D MAZE

BY STEPHEN GODFREY

RUNS ON A TI 99/4a in 16K

The baffling corridors of mazes seem to have a certain strange fascination for our readers. Maze games have become firm favourites with you funny people out there! So by public demand we bring you more mind-boggling frustration.

Stephen Godfrey took a look at the 3D Maze game we printed for the Sharp MZ-80k in our Book of Games earlier this year and came up with a conversion for the TI 99/4a.

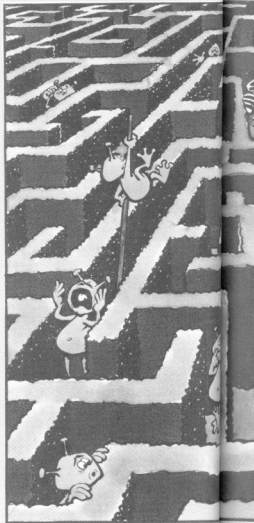
All you have to do is find your way through the maze and discover the exit. Sounds simple, but just try it!

You'll soon be tearing your hair in great

big lumps — we guarantee it! But never mind Stephen has come up with a cure for premature baldness.

Stephen has also included an ingenious "cheat" command — but you'll have to play the game to find out just what that does for you. Other, more standard controls, are: "L" for left, "R" for right, "M" to move forward and "T" to turn 180 degrees.

Program notes
To make your life easier type in lines 14 to 27 first and RUN. Then substitute the characters shown below — where they occur — with the given keystroke. (Note: This will be different if you have a TI 99/4.)



```

1 CALL CLEAR
2 PRINT : "3-D MAZE FOR TEXAS TI9
  9/4(R)"
3 PRINT : "BY STEPHEN GODFREY"
4 PRINT : "ADAPTED FROM 3-D MAZE
  BY"
5 PRINT : "MATTHEW BLAKSTAD IN TH
  E"
6 PRINT : "'BOOK OF GAMES' FREE W
  ITH"
7 PRINT : "FEBRUARY 1983 C & V.G.
  "
8 PRINT : "PRESS ANY KEY"
9 CALL KEY(O,K,S):: IF NOT S THE
  N 9 ELSE CALL CLEAR
10 PRINT "YOU HAVE TO FIND YOUR
  
```

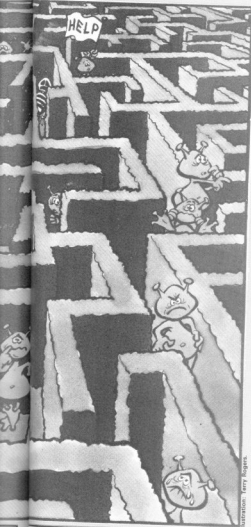


Illustration: Terry Rogers

WAY": "OUT OF A MAZE. YOU ARE G
IVEN": "A 3-D VIEW OF THE MAZE
FROM": "THE POINT WHERE YOU STA
ND."

11 PRINT "YOUR CONTROLS ARE:"
: "L - TURN LEFT": "R - TURN R
IGHT": "F - TURN 180 DEGREES":
: "M - MOVE FORWARD": "C - CHEAT
(ONLY 5 ALLOWED)"

12 PRINT "PRESS ANY KEY"
13 CALL KEY(O,K,S): IF NOT S TH
EN 13

14 DATA FFFFFFFFFFFFFFFF
15 DATA 8040201008040201
16 DATA 0102040810204080
17 DATA 00000000000000FF

```
18 DATA FF00000000000000
19 DATA 8080808080808080
20 DATA 0101010101010101
21 DATA 80808080808080FF
22 DATA FF01010101010101
23 DATA FF80808080808080
24 DATA 01010101010101FF
25 DATA 1,133,232,298,20,144,237
,299
26 DATA 20,12,6,2,2,3,5,7
27 FOR T=1 TO 11 :: READ D$: : C
ALL CHAR(127+T,D$):: NEXT T
28 CALL CHAR(120,"383810FE103844
82")
29 CALL CHAR(121,"001112D4F8D412
11")
30 CALL CHAR(122,"82443810FE1038
38")
31 CALL CHAR(123,"88482B1F2B4888
00")
32 CALL CLEAR :: CALL SCREEN(1)
33 PRINT "
34 PRINT "
35 PRINT "          3-D MAZE
36 PRINT "          =====
37 PRINT "          "
38 PRINT "          "
39 PRINT "          "
40 PRINT "          "
41 PRINT "          "
42 PRINT "          "
43 PRINT "          "
44 PRINT "          "
45 PRINT "          "
46 PRINT "          "
47 PRINT "          "
48 PRINT "          "
49 PRINT "          "
50 PRINT "          "
51 PRINT "          "
52 PRINT " /PLEASE WAIT..... \"
54 FOR T=1 TO 14 :: CALL COLOR(T
,16,1): NEXT T
55 DIM CL(2,4):: FOR I=1 TO 2 ::
FOR J=1 TO 4 :: READ CL(I,J)::
NEXT J :: NEXT I
56 RANDOMIZE
57 LI=6+INT(RND*5):: LJ=6+INT(RN
D*5):: DIR=INT(RND*4)+1 :: DD=DI
R :: CI=LI :: CJ=11-LJ
58 DIM DW(4):: FOR I=1 TO 4 :: R
EAD DW(I):: NEXT I
59 DIM DL(2,2):: DL(1,1)=129 ::
DL(1,2)=130 :: DL(2,1)=130 :: DL
(2,2)=129
60 DIM VL(2):: VL(1)=134 :: VL(2
)=133
61 DIM DR(4):: FOR I=1 TO 4 :: R
```

```

EAD DR(I):: NEXT I
62 CALL COLOR(0,16,1)
63 DISPLAY AT(23,2)SIZE(18):"SEL
ECT MAZE(1-3):"::: ACCEPT AT(23,
19)SIZE(1)BEEP,VALIDATE(DIGIT):M
Z:: IF MZ<1 OR MZ>3 THEN 63
64 IF MZ=1 THEN RESTORE 204 ELSE
IF MZ=2 THEN RESTORE 214 ELSE R
ESTORE 224
65 DIM MS(10,10):: FOR I=1 TO 10
:: FOR J=1 TO 10:: READ MS(I,J)
):: NEXT J:: NEXT I
66 CALL CLEAR
67 TI=LI:: TJ=LJ:: FOR CA=1 TO
4
68 FOR SD=1 TO 2
69 DV=DIR+(3-2*SD):: IF DV=0 THE
N DV=4
70 IF DV=5 THEN DV=1
71 TV=MS(TI,TJ)/DR(DV)
72 IF INT(TV)<>TV THEN 119
73 FOR I=CL(SD,CA)TO CL(SD,CA)+(
35-2*SD)*(4-CA)STEP (35-2*SD)::
CALL POKE(I,DL(SD,1)):: NEXT I
74 IF CA=4 THEN I=CL(SD,CA)+32:
:GOTO 76
75 TV=I+(SD*2-3):: E=0:: FOR I=
TV TO TV+32*(DW(CA)-2*(4-CA)-3)S
TEP 32:: E=E+1:: NEXT I:: Y=I
NT(TV/32)+1:: X=TV-INT(TV/32)*3
2+1:: CALL VCHAR(Y,X,VL(SD),E)
76 TV=I:: FOR I=TV TO TV+(29+2*
SD)*(4-CA)STEP (29+2*SD):: CALL
POKE(I,DL(SD,2)):: NEXT I
77 E=0:: X=CL(SD,CA)+(2*SD-3)::
FOR I=X TO CL(SD,CA)+(2*SD-3)+3
2*(DW(CA)-32)STEP 32:: E=E+1::
NEXT I:: Y=INT(X/32)+1:: X=X-I
NT(X/32)+32+1:: CALL VCHAR(Y,X,
VL(SD),E)
78 NEXT SD
79 IF CA=4 THEN 86
80 TV=MS(TI,TJ)/DR(DIR)
81 IF INT(TV)=TV THEN 114
82 IF DIR=1 THEN TI=TI-1:: IF T
I=0 THEN CALL POKE(CL(1,4),69)::
GOTO 87
83 IF DIR=2 THEN TJ=TJ+1
84 IF DIR=3 THEN TI=TI+1
85 IF DIR=4 THEN TJ=TJ-1
86 NEXT CA
87 CALL COLOR(13,16,1,14,16,1)
88 CALL KEY(O,K,S):: IF NOT S TH
EN 88
89 AS=CHR$(K)
90 IF AS="L" THEN TN=1
91 IF AS="R" THEN TN=-1
92 IF AS="F" THEN TN=2

```



```

93 IF AS="M" THEN 101
94 IF AS="C" THEN CC=CC+1:: IF
CC>5 THEN 88 ELSE TN=3
95 IF TN=0 THEN 88
96 IF TN<3 THEN 98
97 ON MZ GOSUB 132,156,180:: CA
LL POKE(-31+64*LI+2*(11-LJ),119+
DIR):: CALL COLOR(13,16,1,14,16,
1):: FOR T=1 TO 2000:: NEXT T:
:GOTO 100
98 DIR=DIR+TN:: IF DIR=0 THEN D
IR=4
99 IF DIR>4 THEN DIR=DIR-4
100 TN=0:: CALL CLEAR:: GOTO 6
7
101 IF MS(LI,LJ)/DR(DIR)=INT(MS(
LI,LJ)/DR(DIR))THEN CALL SOUND(4
00,262,0):: DISPLAY AT(12,5)SIZE
(10)BEEP:"HIT WALL!":: GOTO 88
102 IF DIR=1 THEN LI=LI-1:: IF
LI=0 THEN 107
103 IF DIR=2 THEN LJ=LJ+1
104 IF DIR=3 THEN LI=LI+1
105 IF DIR=4 THEN LJ=LJ-1
106 GOTO 100
107 CALL SOUND(3000,262,0,330,0,
523,0)
108 CALL SOUND(1,262,0,330,0,523
,0)
109 CALL CLEAR:: PRINT "CONGRA
TULATIONS!!"
110 PRINT
111 PRINT "YOU HAVE FOUND THE EX
IT!"
112 PRINT
113 INPUT "ANOTHER GO?":G$:: IF
G$="N" THEN END ELSE IF G$="Y"
THEN RUN ELSE 113
114 C1=CL(1,CA)+(5-CA)*33:: C2=

```


LICENSED TO THRILL



Licensing video games is a marketing man's dream. Theory and imagination meet head on as the most unlikely titles, characters, and products are "tied up" at enormous cost to be converted into home video games.

It all started with arcade games. It was an obvious step for the home video games manufacturers to license the title of a popular arcade game and convert it for home use.

Gamers now take for granted that successful arcade titles will eventually be converted for the home systems. But just five years ago it was thought very innovative when Atari introduced home versions of Space Invaders and Breakout for home use.

Now any arcade game which produces the slightest tremor of popularity in the arcades is leapt on by the large firms license-hunters.

Many games are tied up even before they go into the arcades, just in case they are hits.

Licensing has been the salvation of the arcade game manufacturers many of whom receive millions of pounds for their games.

Of course this has its bad side as well as its good side and many people in the arcade business believe that quick conversions to the home are killing the revenues of the arcade proprietors.

Whatever the effects on the arcade industry these games are key targets for the home game manufacturers.

Parker Brothers spent four million dollars each to get Popeye, Q*bert and Tutankham and expect to have to pay at least this in the future for good titles.

Colecovision could not quote an exact figure for licensing arcade games because the deals they make are usually for more than one game. One thing is certain though — with two of the hottest titles of the year in the shape of Zaxxon and Donkey Kong the sums involved would, as with Parker Brothers, be

**How your
favourite heroes
are turned into
your favourite
games.**

By Eugene Lacey

measured in at least six figures.

Atari are in a slightly more favourable position than some of their competitors as they have their own arcade division.

This means that they already own the rights to several hit games, Centipede, Pole Position, and Xevious to name but three.

Fortunes are made on the rights to arcade games but even larger fortunes are made on the rights to films.

Mattel Electronics were the first company to produce a home video game based on a popular film release — with their Tron games for the Intellivision.

Their deal with Walt Disney also enables them to produce games based on some of the Disney cartoon characters.

Atari followed into films in a big way last year with a 25 million dollar deal with Stephen Spielberg which enabled them to produce both **ET** and **Raiders of the Lost Ark** games for the V.C.S.

The list of game-of-the-film titles is now a larger category than sports simulations.

Like all so-called comprehensive lists I've probably left something out. However, here are all the video games, some of which are not available in the UK, based on feature films.

ET, **Raiders of the Lost Ark**, **Jedi Arena**, **Return of the Jedi**, **The Empire Strikes Back**, **Superman**, **Spiderman**, **M.A.S.H.**, **Tron** — **Deadly Discs**, **Tron** — **Maze-a-Tron**, **Tron** — **Solar Sailor**, **Buck Rogers**,

China Syndrome and **James Bond 007**.

Before you read this there will probably be half a dozen other films announced for the video games treatment.

Although several films have now been converted by far and away the most expensive must surely be the **Star War** games.

The exact details of **Parker Brothers** deal with **George Lucas**, the director of the **Star War** films, is not known. We do know that **Parker Brothers** have the rights to produce all sorts of games and toys based on the films.

There will be dozens of **Star War** toys in the shops this Christmas from large plastic **Millennium Falcon**s, models of **R2-D2**, **C3-PO** and **Chewy** and the video games — of which **Parker** already have three, with one more in the pipeline.

Unlike **Spielberg**, who received his money "up front" from **Atari**, **Lucas** earns a percentage of the profits of all the **Star Wars** toys.

Blockbuster films are by no means the only areas being looked at by the game license hunters.

Anything which has popular awareness, particularly among young people, can be turned into a game.

The **Americans** band **Journey** recently became the first pop group to have their own video game and are likely to be followed by **Devo** number two. Come on **Duran Duran**! let's have the first British group video game.

Television programmes are also being looked at and in America a firm recently advertised a **Dukes of Hazard** game, which should just beat **Atari's** **Muppets** game on the shelves.

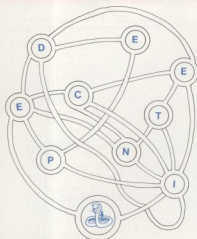
We have probably not even scratched the surface of video and computer game licenses.

One clue to what to expect in the future is a game recently gone on sale in America with the charmingly ridiculous name of **Attack of the Beef Steak Tomatoes**.

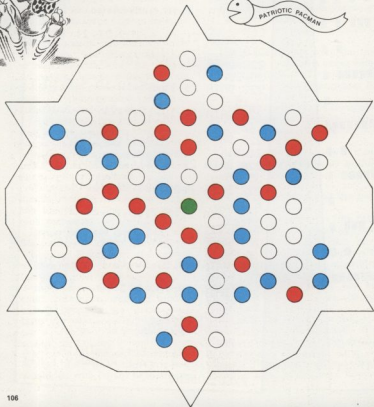
PUZZLING

SNACKBITE

Cyril, the word-eating snake, takes his daily meal by leaving his lair and wandering along the tunnels which connect the chambers of his den. At each chamber he takes a bite



1	I			
2			E	
3				
4		I		
5				E
6				
7				
8				I
9	E			
10				
11				E



at a letter and he is so intelligent that his path always forms words.

He cannot turn round in a tunnel and will not visit the same chamber more than once in any one word.

What puts his I.Q. way above that of his fellow computer asps is that the last letter of one word is also the first letter of the next.

Can you find the eleven words which he makes before returning to his sleeping quarters?

PATRIOTIC PACMAN

It is only right and proper that P****E W*****'s first toddler micro should be accompanied by software of a regal and loyal nature.

In his version of Munchyman, the dots are coloured Red, White and Blue and the patriotic little gobbler always eats the dots in that order. Blue being followed by Red again and so on.

Once a dot has been visited it cannot be used or passed through again and the task is to consume as many dots as possible before becoming stuck.

From any dot you can only move to a **neighbouring** dot — i.e. one you can reach without passing between two other dots. Starting from the Green dot at the centre, just what is the longest path you can find?

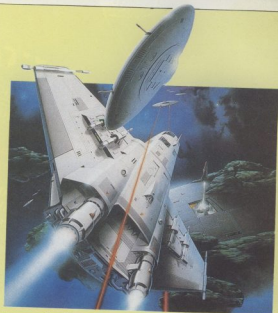
For family fun, place a piece of tracing or thin paper over our picture and draw on that, then everyone can have a turn.

PUZZLING SOLUTIONS
ON PAGE 128



INTO THE FUTURE

what gaming's got in store
By Terry Pratt



Imagine your ideal game with graphics that leave nothing to the imagination.

It comes to your home where you sit alone but can play against other people sitting in their own living rooms.

It has stereo sound and the explosions actually rock your chair.

It may be science fiction at the moment but it will be happening very shortly. All of the technology is already here and it won't be long before someone packages a game which puts you on the inside with the action happening around you.

The most important development is laser disc games. The next generation of arcade games will feature laser disc technology with film action reacting to the player's movement and firing.

Already a game called *Astron Belt* is in UK arcades, showing what is possible on laser disc.

Astron Belt puts a computer graphic ship in front of a film background, which comes from a Japanese science fiction film. The background consists of planets, stars, alien ships and alien landscapes and when the computer registers a hit on an alien craft, the screen dissolves into a bright orange explosion.

The game has plenty of flaws but these should be corrected and improved as the manufacturers understand the medium better. The main problem with laser disc is interruption in the game action.

This is due to the speed at which the laser can search appropriate scenes and sounds called for by the player's response.

One way around the disc response time is to store the information in an efficient way so that it follows the

game's logical sequence. Another more expensive way is to use a double disc system so that one disc follows the current action while the second prepares for the player's next move, providing a "seamless" picture. A laser disc cabinet costs about £2,000 but it is easily re-usable with a new game disc.

Other examples of games using this technology are: *Dragon's Lair* and *Eon* and the *Time Tunnel*.

Dragon's Lair is a fully animated sword-and-sorcery cartoon with the player taking the part of Dirk the Daring. He swashbuckles through a castle loaded with scorpions, snakes, trapdoors and pools of fire.

Eon and the *Time Tunnel* is a similar fantasy theme but the player travels through a series of movie scenes featuring ominous Welsh castles and futuristic cities.

Astron Belt also features the vibration. A chair which shakes and vibrates in time with the action, so those explosions can really rock you to the core.

Another arcade breakthrough is in allowing players to take on each other as well as the computer. A Californian company, Simutron has just produced the *Simulator* game system which allows up to 16 players to interact on one tournament centre.

Each player is sat in a cubicle with up to four screens of action in front of him. The first game using this system is called: *Star Trek: The Motion Picture* (not to be confused with the

current *Star Trek* game going the rounds in arcades).

A player has four screens of information, showing tactical displays and laser disc film from the movie *Star Trek*. It has a hundred buttons, voice synthesis and stereo sound. If he wants to compete against a friend, the other players' ships appear on his screen as rebel fleets.

For the future they plan a sports simulation, a fantasy game and games based on other popular movies. The system can also be connected down a phoneline to other similar centres allowing a nationwide or even worldwide tournament.

In the U.S. they are already doing without the phones, using cables. The system is currently limited to a small audience served by Play-Cable, a New York City-based firm, half-owned by Mattel. This winter will see the launch of the Games Network of Los Angeles and three other companies (including Atari) are exploring the possibilities.

PlayCable offers subscribers (\$15 a month) 20 video games which change every month. The system can only be used by owners of Mattel's Intellivision System and games are downloaded into the system in about 10 seconds.

Games Network will place a microcomputer in the subscribers home for \$50 (about £35) and then it's \$14 a month for 20 games, including some arcade hits.

It's all just around the corner.

METEOR ATTACK

BY PETER AND MARK WRIGHT
RUNS ON AN ATARI 400/800 IN 16k.

Your city is in danger. A heavy shower of meteors is heading your way from the depths of space. Take off in your space-chopper and blast the deadly rocks with short range missiles before they crash down on the gleaming spires and towers of the city. There are three skill levels built into this game which will test your speed and skill to the limit. Instructions are included in the program. Can you save the city?

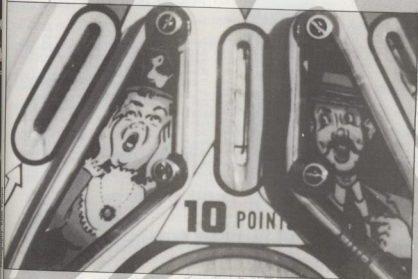
```
1 REM METEOR ATTACK BY PETER AND MARK WRI
10 HT. OCTOBER 1982
5 OPEN #1:4,0,"K:"
10 GRAPHICS 1:SETCOLOR 2:12,6:SETCOLOR 0
:0,10:SETCOLOR 4:7,6:SETCOLOR 3,3,8
15 ? #6:"meteor attack":POKE 752,1:POKE
656,1:POKE 657,8: ? BY PETER & MARK WRI
GHT "
20 HITCLR=53278:COLR2=706:COLL=53261:PLC
OLL=53254:GOTO 3000
30 EX=50:H=4:L=0:D=0:POKE HITCLR,0:Y=181
:POKE COLR2,56
35 POKE 704,220:FOR E=1 TO 5
40 POKE HITCLR,0:W=INT (RND (0)*143)+48:IF
W/8=INT (W/8) THEN 45
42 IF L=1 THEN GOSUB 50
43 GOTO 100
45 POKE 705,108:XM=XM-CC:POKE PLX1,0:POK
UND 0,XM,8,12
52 IF PEEK (COLL)<>0 THEN POKE PLX1,0:POK
E PLX2,0:SOUND 0,0,0,0:SOUND 2,0,0,0:POP
:GOSUB 500:L=0:XM=187:GOTO 270
55 IF XM=48 THEN XM=187:POKE 705,118:POK
E PLX1,XM:L=0:SOUND 0,0,0,0
60 RETURN
```

Behind the quiet facade of suburban homes all over the country something strange is going on. In the quiet cul-de-sacs and peaceful tree-lined streets of towns and cities you'll find ordinary looking homes which hide a secret known only to a select few. Venturing into this secret world takes you on a nostalgic journey — but if the secret gets out then the residents of these houses may have already discovered the shape of things to come!

Keith Temple, who lives on the outskirts of London, near Croydon, is one of the

PINBALL CRAZY

**Tim Matcalfe finds
he isn't the only one.**



few. The back room of his house is an 'Aladdin's cave' of arcade memorabilia — with pride of place given over to two veteran pinball machines. All bumpers, bells and bright lights these machines are Keith's pride and joy. Along with four other pins and a magnificent 30's style juke-box that is!

Keith is just one of the 300 or so members of the Pinball Owners' Association which has kept the art of playing the silver ball alive during the lean years of the video boom. Now the game which grew up with rock 'n' roll and the Cold War is coming of age in the era of synthesised pop and cruise missiles.

More and more people are turning to pinball as an alternative to hammering the Smart bomb button on

their favourite video game.

Keith is pleased to see pinball making a comeback and although he is a fan of the older machines is ready to admit the modern games are just as good. "The older machines are nice to play, but often the modern electronic pins are faster and give you a better game."

Having said that his favourite pins are the "wooden-rail" machines from the 50's — so called because of the wooden strip along the sides of the cabinet.

Keith's love affair with pinball began when he was still at school in Lincolnshire. He used to nip down to the local cafe and rattle up a few high scores.

Several years later he was passing a shop in Croydon and saw a pin-table lan-

guishing in the window. "I thought to myself, I've got to have that!" Later, on his way home with a car full of old machinery he thought to himself: "What have I done!"

But he learned of the then recently formed Pinball Owners' Association and realised that he wasn't alone in his passion for pinball. He joined up — becoming one of the first members of the fledgling association — and since then has never looked back. He became the associations' Pinball Wizard at their annual convention in 1980, beating all-comers to that coveted prize.

Although Keith has six machines he is just an average pinball fanatic. Other members take their passion even further. Some have built special extensions to

their homes to take collections of pin-tables which often run into double figures. There's a family of pinball fans who have a house full of machines and there's a rumour that one member owns an amazing 200 pins!

But what attracts people like Keith to go to such lengths to preserve these old machines and encourage interest in them? "I suppose there's a certain amount of nostalgia attached to it. But really it's the 64,000 dollar question and very difficult to answer!"

Keith is an art-restorer by trade and lavishes the same care and attention on old pintables as he does on Victorian paintings.

Pinball has been thought of as primitive compared to the latest 3D stereo-sound video games. And admittedly many of the features you'll find on a modern pin date from the 30's and 40's. But pinball has made a bold step into the microchip age.

Electro-mechanical machines are things of the past — replaced by chip controlled games. Some even speak to you as you flip the ball around. There are pins based on video game themes, like the Williams Defender and combined video and pinball games like Bally's Baby Pac-Man. All a far cry from the first pin-tables which had light bulbs to mark up the score instead of digital displays!

Pinball has also survived conversion to the small screen. Some video games centres have pinball cartridges produced for them and computer owners can also play pinball.

Tandy brought out a cartridge for the TRS-80 Colour Computer which had the added attraction of allowing the player to design his own playfield. Texas owners can also play the game.

But for people like Keith their will never be a substitute for the real thing. They'll be Pinball Crazy until their flipper fingers seize-up!

If you want to know more about pinball or the Pinball Owners' Association contact the association's headquarters at "Arcadia", 465 Cranbrook Road, Ilford, Essex.


```

100 FOR MP=42 TO 183 STEP H: SOUND 2, MP, 0
,8: ST=STICK(0): POKE HITCLR, 0
105 IF ST=15 THEN 115
110 Y=Y+5*(ST=13)-5*(ST=14): POKE PLY, Y
115 IF L=0 THEN M=STRIG(0): IF M=0 THEN P
OKE PLY1, Y: L=1
120 IF L=1 THEN GOSUB EX
130 POKE PLX2, W: POKE PLY2, MP
140 IF L=0 THEN FOR Z=1 TO 20: NEXT Z
150 Y=Y+5*(ST=13)-5*(ST=14): POKE PLY, Y
160 IF L=1 THEN GOSUB EX
170 IF PEEK(PLCOLL)<>0 THEN COLOR ASC(CH
AR$(5)): PLOT (W-48)/8, (MP-34)/8
190 SOUND 2, 0, 0, 0: NEXT MP
200 IF MP>=182 THEN COLOR 138: PLOT (W-48
)/8, 19
270 NEXT E
280 IF H=4 THEN POKE COLR2, 104: H=5: GOTO
35
290 IF H=5 THEN POKE COLR2, 232: H=6: GOTO
35
300 IF H=6 THEN POKE COLR2, 250: H=7: GOTO
35
310 IF H=7 THEN POKE COLR2, 250: H=8: GOTO
35
320 SOUND 0, 0, 0, 0: SOUND 2, 0, 0, 0: GOTO 200
0
500 FOR C=1 TO 5: SOUND 0, 255, 4, 15: FOR I=
1 TO 5: SETCOLOR 4, 7, 6: NEXT I: NEXT C
510 POKE HITCLR, 0: SOUND 0, 0, 0, 0: O=O+1: P
O
SITION 6, 0: ? #6: "s hit "0: RETURN
750 POSITION 4, 3: ? #6: "1=novice"
760 POSITION 4, 5: ? #6: "2=pilot"
770 POSITION 4, 7: ? #6: "3=commander"
780 GET #1, K
790 IF K=49 THEN CC=8: POSITION 15, 0: ? #6
: "sk=1": GOTO 820
800 IF K=50 THEN CC=6: POSITION 15, 0: ? #6
: "sk=2": GOTO 820
810 IF K=51 THEN CC=4: POSITION 15, 0: ? #6
: "sk=3": GOTO 820
815 GOTO 780
820 POSITION 4, 3: ? #6: " "
830 POSITION 4, 5: ? #6: " "
840 POSITION 4, 7: ? #6: " "
850 FOR T=1 TO 10: SOUND 0, 47, 10, 10: POSIT
ION 0, 0: ? #6: "meteor alert": FOR J=1 TO 5
0: NEXT J: SOUND 0, 64, 10, 10
860 POSITION 0, 0: ? #6: " ": FO
R J=1 TO 50: NEXT J: NEXT T: SOUND 0, 0, 0, 0
870 POSITION 0, 0: ? #6: "meteor alert"
880 GOTO 30
1000 REM CHARACTER SET DATA

```

```

1010 POKE 30729, 0
1020 DATA 0, 0, 0, 24, 24, 126, 127, 255
1021 DATA 255, 153, 153, 153, 153, 153, 255, 2
5
1022 DATA 255, 153, 153, 255, 153, 153, 255, 2
5
1023 DATA 24, 255, 126, 102, 102, 102, 102, 255
1024 DATA 0, 0, 0, 0, 0, 0, 0, 0
1025 DATA 0, 0, 0, 42, 28, 8, 20, 20
1040 DIM CHAR$(7): CHAR$="*+<>@="
1045 CHSET=(PEEK(106)-8)*256: CHORG=5734
1050 IF PEEK(CHSET+9)<>0 THEN 1140
1060 FOR I=0 TO 511: POKE CHSET+I, PEEK(CH
ORGI): NEXT I
1070 FOR I=1 TO 6
1090 CHPOS=CHSET+(ASC(CHAR$(I))-32)*8
1100 FOR J=0 TO 7
1110 READ A: POKE CHPOS+J, A
1120 NEXT J: NEXT I
1130 FOR I=32 TO 39: POKE CHSET+I, 255-PEE
K(CHORG+I): NEXT I
1140 POKE 756, CHSET/256
1150 RESTORE 1181
1160 FOR I=1536 TO 1706: READ A: POKE I, A:
NEXT I
1170 FOR I=1774 TO 1787: POKE I, 0: NEXT I
1181 DATA 162, 3, 189, 244, 6, 240, 89, 56, 221,
240, 6, 240, 83, 141, 254, 6, 106, 141
1182 DATA 255, 6, 142, 253, 6, 24, 169, 0, 109, 2
53, 6, 24, 109, 252, 6, 133, 204, 133
1183 DATA 206, 189, 240, 6, 133, 203, 173, 254,
6, 133, 205, 189, 248, 6, 170, 232, 46, 255
1184 DATA 206, 6, 144, 16, 168, 177, 203, 145, 205, 1
69, 0, 145, 203, 136, 202, 208, 244, 76, 87
1185 DATA 6, 160, 0, 177, 203, 145, 205, 169, 0,
145, 203, 200, 202, 208, 244, 174, 253, 6
1186 DATA 173, 254, 6, 157, 240, 6, 189, 236, 6,
240, 48, 133, 203, 24, 138, 141, 253, 6
1187 DATA 109, 235, 6, 133, 204, 24, 173, 253, 6
, 109, 252, 6, 133, 206, 189, 240, 6, 133
1188 DATA 205, 189, 248, 6, 170, 160, 0, 177, 20
3, 145, 205, 200, 202, 208, 248, 174, 253, 6
1189 DATA 169, 0, 157, 236, 6, 202, 48, 3, 76, 2,
6, 76, 98, 228, 0, 0, 104, 169
1190 DATA 7, 162, 6, 160, 0, 32, 92, 228, 96
1200 PM=PEEK(106)-16: PMBASE=256*PM: Y=181
: XM=187
1210 FOR I=PMBASE+1023 TO PMBASE+2047: PO
KE I, 0: NEXT I
1230 PLX=53248: PLX1=53249: PLX2=PLX+2: PLY
=1780: PLL=1784: PLY1=PLY+1: PLY2=PLY+2
1240 POKE 704, 118: POKE 705, 118: POKE COLR
2, 54
1250 POKE 559, 62: POKE 623, 1: POKE 1788, PM

```

44:POKE 53277,3:POKE 54279,PM:POKE 1771,
PM:POKE 53256,1
1260 RESTORE 1280
1270 FOR I=PMBASE+1024 TO PMBASE+1035:RE
AD A:POKE I,A:NEXT I
1280 DATA 254,254,16,16,127,127,120,120,
32,32,112,112
1290 RESTORE 1310
1300 FOR I=PMBASE+1280 TO PMBASE+1291:RE
AD A:POKE I,A:NEXT I
1310 DATA 0,0,0,0,0,0,1,3,60,60,3,1
1320 RESTORE 1340
1330 FOR I=PMBASE+1536 TO PMBASE+1543:RE
AD A:POKE I,A:NEXT I
1340 DATA 30,126,252,126,127,255,254,90
1350 POKE PLY,Y:POKE PLY1,Y:POKE PLX,193
1:POKE PLX1,XM:POKE PLL,12:POKE PLL+1,12:
POKE PLL+2,12
1360 X=USR(1696)
1380 POSITION 0,18:? #6:"press fire to s
tart"
1400 IF STRIG(0)=0 THEN 1420
1410 GOTO 1400
1420 FOR N=2 TO 18 STEP 2:FOR I=0 TO 19:
SOUND 0,I+100,8,8:POSITION I,N:? #6:" "
NEXT I:NEXT N:SOUND 0,0,0,0
1430 POKE 656,1:POKE 657,8:? "

1500 POSITION 0,0:? #6:"meteor attack"
1505 FOR I=2 TO 6:FOR N=19 TO 18 STEP -1
:COLOR ASC(CHAR\$(3)):PLOT I,N:NEXT N
1510 FOR N=17 TO 16 STEP -1:COLOR ASC(CH
AR\$(2)):PLOT I,N:NEXT N
1520 FOR N=15 TO 13 STEP -1:COLOR ASC(CH
AR\$(3)):PLOT I,N:NEXT N:NEXT I
1530 FOR I=3 TO 5:COLOR ASC(CHAR\$(2)):PL
OT I,12:NEXT I:COLOR ASC(CHAR\$(4)):PLOT
4,11
1540 FOR I=8 TO 11:FOR N=19 TO 16 STEP -
1:COLOR ASC(CHAR\$(2)):PLOT I,N:NEXT N
1550 COLOR ASC(CHAR\$(3)):PLOT I,15:NEXT
I
1560 FOR I=9 TO 10:COLOR ASC(CHAR\$(4)):P
LOT I,14:NEXT I
1570 FOR I=13 TO 17:COLOR ASC(CHAR\$(3)):P
LOT I,19
1580 FOR N=18 TO 12 STEP -1:COLOR ASC(CH
AR\$(2)):PLOT I,N:NEXT N
1590 COLOR ASC(CHAR\$(3)):PLOT I,11:NEXT
I
1600 FOR N=14 TO 16:COLOR ASC(CHAR\$(3)):P
LOT N,10:NEXT N:COLOR ASC(CHAR\$(4)):PLOT
15,9
1610 I=0:FOR N=19 TO 16 STEP -1:COLOR AS

C(CHAR\$(2)):PLOT I,N:NEXT N
1620 FOR N=15 TO 13 STEP -1:COLOR ASC(CH
AR\$(3)):PLOT I,N:NEXT N
1630 FOR N=12 TO 10 STEP -1:COLOR ASC(CH
AR\$(2)):PLOT I,N:NEXT N
1640 FOR N=9 TO 7 STEP -1:COLOR ASC(CHAR
\$(2)):PLOT I,N:NEXT N
1650 COLOR ASC(CHAR\$(4)):PLOT 0,6
1660 COLOR ASC(CHAR\$(6)):PLOT 1,19:PLOT
7,19:PLOT 12,19:PLOT 6,12:PLOT 8,14:PLOT
17,10
1670 GOTO 750
2000 REM END GAME ROUTINE
2002 POSITION 0,0:? #6:"ALL CLEAR"
"
2005 CITY=0:POKE 704,118:POKE 705,118:PO
KE PLX2,1
2010 FOR I=0 TO 17:FOR N=6 TO 19
2020 LOCATE I,N,XX
2030 IF (XX=43) OR (XX=45) OR (XX=60) TH
EN CITY=CITY+1
2040 NEXT N:NEXT I
2050 SC=INT((CITY/124)*100)
2060 FOR N=6 TO 19:FOR I=0 TO 19:SOUND 0
,75+I,0,8:POSITION I,N:? #6:" " :NEXT I:N
EXT N:SOUND 0,0,0,0
2070 POSITION 0,0:? #6:" "
2075 POSITION 0,0:? #6:" " :POSIT
ION 1,1:? #6:"METEORS DESTROYED":POSITIO
N 8,3:? #6:10
2080 POSITION 5,5:? #6:"YOU SAVED":POSIT
ION 8,7:? #6:15C:"X":POSITION 4,9:? #6:"O
FF THE CITY"
2130 POSITION 0,11:? #6:"TO PLAY AGAIN P
RESS":POSITION 7,13:? #6:"start":FOR T=1
TO 50:NEXT T:POSITION 7,13
2140 ? #6:" " :FOR R=1 TO 50:IF PEEK(
53279)=6 THEN R=50:GOTO 2160
2150 NEXT R:GOTO 2130
2160 FOR N=1 TO 11 STEP 2:FOR I=0 TO 19:
SOUND 0,75+I,8,8:POSITION I,N:? #6:" " :N
EXT I:NEXT N:SOUND 0,0,0,0
2170 GOTO 1500
3000 POSITION 0,2:? #6:"the city is in p
eril":? #6:"a swarm of meteors"
3010 ? #6:? #6:"is heading for earth":?
#6:"your helicopter"
3020 ? #6:? #6:"cannot enter the":? #6:?
#6:"danger zone. destroy"
3030 ? #6:"the meteors with":? #6:? #6:"
short range missiles"
3050 GOTO 1000

Communication to Tracker Z680 ... unprogrammed android in your sector. Type: security droid. Status: control malfunction. Solution: terminate ... message ends.

Another assignment for the overworked and underpaid Tracker. A dangerous job hunting down rogue androids. You never know just what you are likely to come up against. Some of them are pretty tough customers. But then, so are the Trackers ...

These men are the bounty hunters of the 21st century. Seeking out and destroying rogue androids who get too big for their programming sequence. Now you can join the elite ranks of these modern day hunters and save the world from the dangerous androids.

The fugitive android lurks somewhere among the obstacles on your Tracker control screen, displaying the sector your Tracker patrols. The Tracker must catch the android within

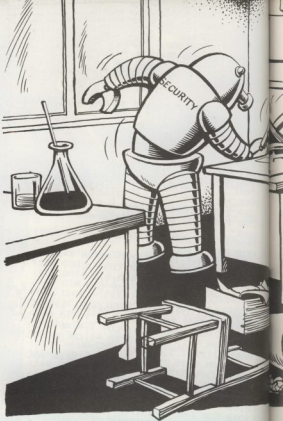
18 moves or the fugitive realises it is being followed with nasty consequences for the Tracker. To catch the android the Tracker first has to work out the best route to reach his target and input them into his control computer. The complete set of moves must be typed in — up to 18 — and then just hit the return key and sit back and watch.

The Tracker on screen follows the appropriate course step by step.

While this is going on a small arrow points to the appropriate instruction on the line the player has keyed in, and the move number is shown. Inputs are: L = left, R = right, U = up, D = down.

Remember totake care when you are typing the listing into your machines. If you make a mistake it could mean many frustrating moments.

So to save your sanity check each line carefully — and only turn to the Bug Hunter as a last resort!



BY RICHARD BARTON

TRACKER

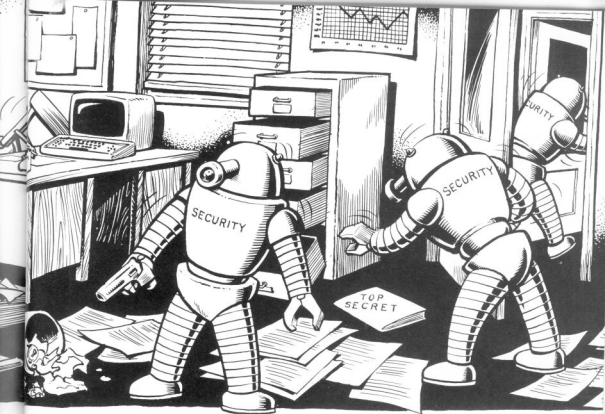
RUNS ON AN UNEXPANDED VIC-20

Variables

Z = step count for display on screen.
CO = colour address offset from character address.
S1, S2, S3 = Vic sound addresses.
V = volume.
U, D, L, R = represent screen codes form various arrows (Tracker).
G = Grid display.
C = border of grid.
Q = fugitive position.
X = tracker position.
Y = represents whatever arrow code is being used at any time (U, D, L, R) (e.g. = Y = R).
MS = special sound effect routine.
T = time delay.

Program notes

Lines 100 to 140 creates the grid display.
Lines 220 to 280 creates the random obstacles on the grid.
Lines 283 to 288 draws the border around the grid.
Lines 300 to 320 draws the fugitive in a random position.
Line 340 draws the initial starting position of Tracker.
Line 400 tests length of inputted directions.
Lines 520 to 585 moves Tracker and tests positions.
Lines 700 to 760 tests for a "HIT".
Lines 800 to 960 gives sound effects for "HIT" or "MISS".



```

20 PRINT "J"
40 CO=30720:Z=0
50 U=1:DW=22:L=60:R=52:X=7822
80 S1=36874:S2=36875:S3=36876:V=36878
100 FORQ=7680TO7921
120 POKEQ,122:POKEQ+CO,0
140 NEXTQ
220 FORB=1TO48
240 M=INT(RND(1)*241)+7680
260 POKEM,160:POKEM+CO,6
280 NEXTB
283 FORC=7680TO7701:POKEC,160:POKEC+CO,0:NEXTC
284 FORC=7701TO7943STEP22:POKEC,160:POKEC+CO,0:NEXTC
296 FORC=7943TO7922STEP-1:POKEC,160:POKEC+CO,0:NEXTC
308 FORC=7922TO7680STEP-22:POKEC,160:POKEC+CO,0:NEXTC
380 Q=INT(RND(1)*241)+7680
310 IFPEEK(Q)=160THEN300
320 POKEQ,102:POKEQ+CO,2
340 POKEQ,R:POKEQ+CO,2
360 PRINT "XXXXXXXXXXXXXXXXXXXX"
380 INPUT$
400 IFLEN(R$)>18THENPRINT"  TOO MANY
MOVES  " :FORT=1TO800:NEXTT:GOTO990
420 POKEV,10
440 POKEN,30:POKEN+CO,4
460 N=8166
480 POKEN,30:POKEN+CO,4:POKEN-1,32
500 IFPEEK(N-22)=32THEN700
520 IFPEEK(N-22)=21ANDPEEK(X-22)<160THENX=
X-22:POKEX+22,122:POKEX+CO+22,0:Y=U
540 IFPEEK(N-22)=4ANDPEEK(X+22)<160THENX=
X+22:POKEX-22,122:POKEX+CO-22,0:Y=Y

```

```

560 IFPEEK(N-22)=12ANDPEEK(X-1)<160THENX=
X-1:POKEX+1,122:POKEX+CO+1,0:Y=L
580 IFPEEK(N-22)=18ANDPEEK(X+1)<160THENX=
X+1:POKEX-1,122:POKEX+CO-1,0:Y=R
585 POKEV,Y:POKEV+CO,2
586 Z=Z+1
587 PRINT "XXXXXXXXXXXXXXXXXXXX"STEP,Z
600 POKES3,200
620 FORT=1TO100:NEXTT
640 POKES3,0
660 N=N+1
680 GOTO480
700 IFPEEK(X)=LANDPEEK(X-22)=102THEN790
720 IFPEEK(X)=DANDPEEK(X+22)=102THEN790
740 IFPEEK(X)=LANDPEEK(X-1)=102THEN790
760 IFPEEK(X)=RANDPEEK(X+1)=102THEN790
780 PRINT "XXXXXXXXXXXXXXXXXXXX"STEP,Z
790 PRINT "XXXXXXXXXXXXXXXXXXXX"STEP,Z
800 FORMS=132TO240STEP,7
820 POKES2,MS
840 NEXTMS
850 FORT=1TO500:NEXTT
860 POKES2,0
880 GOTO990
900 FORMS=240TO132STEP-,7
920 POKES1,MS
940 NEXTMS
950 FORT=1TO500:NEXTT
960 POKES1,0
980 PRINT "XXXXXXXXXXXXXXXXXXXX"STEP,Z
1000 GET$ : IF$=" "THEN1000
1020 IF$="R"THENRUN
1040 GOTO1000

```

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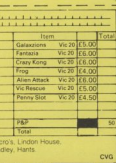
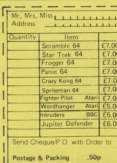


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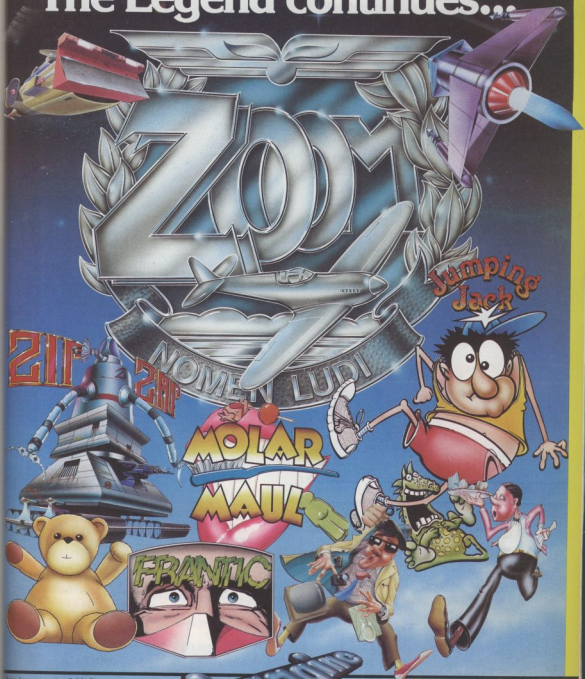
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DATA FOR GRAPHICS

```

1 FOR x=65368 TO 65335
2 READ d: POKE x,d
3 NEXT x
4 DATA £
60,126,90,219,255,255,219,137,25
5,0,0,0,0,0,255,129,129,129,12
9,129,129,129,129,252,2,1,1,1,1,
2,252,129,129,129,129,129,129,66
,60,63,64,128,128,128,128,64,63,
60,66,129,129,129,129,129,129,60
,126,255,248,248,255,126,60,36,1
02,231,255,255,255,126,60,60,126
,255,31,31,255,126,60,60,126,255
,255,255,231,102,36,0,0,0,0,0,0,
1,255,1,1,1,1,1,1,1,1,128,128,12
8,128,128,128,128,255,0,0,0,0,0,0
,0,0,0,0,60,90,90,255,255,90,
74,15,48,64,64,128,128,128,128,1
,1,1,1,2,2,12,240,128,128,128,12
8,64,64,48,15,240,12,2,2,1,1,1,1

```

```

10 REM A.Beale © 1983
15 REM SAVE "Pacman" LINE 777
7: SAVE "Pacman G"CODE USR "x",2
1*0
20 LET h$=0: LET c=0
25 LET s$=0: LET l=2
30 DATA .3,0,.3,0,.3,0,.2,-5,.
2,-5,.2,0,.4,0,.5,4
31 DATA .3,0,.3,0,.3,0,.2,-5,.
2,-5,.2,0,.3,0,.5,-3
32 DATA .3,0,.3,0,.3,0,.2,-5,.
2,-5,.2,0,.3,0,.3,4
33 DATA .3,5,.3,6,.3,5,.3,4
34 DATA .3,0
39 DATA .4,3,.4,0
50 RESTORE : BORDER 0: PAPER 0
: CLS
100 INK 1: PRINT TAB 5;"qbbbbb
bbobbbbbbbbt"
110 PRINT TAB 5;"c.....c....
....c"
120 PRINT TAB 5;"cuqt.qot.c.qot
.qutc"
130 PRINT TAB 5;"c.sr.slr.e.slr
.sr.c"
140 PRINT TAB 5;"c.....c....
....c"
150 PRINT TAB 5;"c.fd.g.fbobd.g
.fd.c"
160 PRINT TAB 5;"c....c....c....
....c"
170 PRINT TAB 5;"sbbt.nbd.e.fbm
.qbbr"
180 PRINT TAB 5;" c.c.....c
.c "
190 PRINT TAB 5;"fbbr.e.qd ft.e
.sbbd"

```

Late at night, when we were sitting around looking at programs for this year book in the C&VG office we suddenly hear a mysterious sniffing sound coming from the computer room. Expecting to find Mai Function up to no good among the software we crept up to the door and slowly pushed it open. Not a Bug in sight. But sitting in the middle of the floor was a small round yellow being with a small tear running down its chubby cheek. A Pac-man. "What's wrong little fellow?" we asked. "I've heard you are doing a great programs we have known section in the yearbook," it said, wiping away another tear. "Why, yes," we replied, "But why are you upset? Pac-men are usually happy little creatures." "A little ghost told me that I was being left out!", it sobbed. "How could we leave you out! Everyone loves a Pac-man!"

Its round face brightened. "Really!" it exclaimed. "Of course!" we said. "Just wait until I see that ghost!" said the Pacman, gulping down a

powerpill, "I'll soon sort him out!" And with that he disappeared in a puff of golden smoke, leaving behind him this neat little listing for the Spectrum.

This program gets as close to the original arcade version as is possible within the limits of the Spectrum. There are four power pills, two escape tunnels, and all the video-pills a Pac-man can eat. Because of the limitations of Basic there is only one ghost — but he's a mean Pac-hunter. And there's a nice twist to the original theme which gives the little muncher additional problems. The power pills can be transformed into poisonous pills by the devious ghost. While they are poisonous to the Pac-man the pills stop flashing. You get three lives as in the arcade version and the Pac-man is controlled by using the "Q" key to move up, "Z" down, "M" left and "N" right.

Program notes

When entering the maze-printing section of the program the dots are full stops

```

200 PRINT TAB 5;" ...c a c..
"
210 PRINT TAB 5;"fbbt.g.sbbbr.g
.qbbd"
220 PRINT TAB 5;" c.c.....c
.c "
230 PRINT TAB 5;"qbbbr.e.fbobd.e
.sbbt"
240 PRINT TAB 5;"c.....c....
....c"
250 PRINT TAB 5;"c.ft.fbd.e.fbd
.qd.c"
260 PRINT TAB 5;"cu.c.....c
.c.uc"
270 PRINT TAB 5;"nd.e.g.fbobd.g
.e.fm"
280 PRINT TAB 5;"c....c....c....
....c"
290 PRINT TAB 5;"c.fbbld.e.fbl
bbd.c"
300 PRINT TAB 5;"c.....c....
....c"
310 PRINT TAB 5;"sbbbbbbsbbbbb
bbbr"
311 LET i=0: LET u=0: LET t=0
392 FOR f=1 TO 31: READ a: READ
b
394 BEEP a-.1,b: NEXT f
399 LET j=PI: LET m=PI
400 INK 6: FLASH 1: PRINT INK

```

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ps

and must be coloured with ink 7 (white). The maze is drawn using user defined graphics and must be coloured using ink 1 (dark blue). To colour the maze do not use the INK command. Press CAPS SHIFT and SYMBOL SHIFT together. Then hold down the CAPS SHIFT key and press the appropriate ink key. This method saves memory and is necessary if the program is to run on a 16k machine. User defined graphics are shown as capital letters in quotes and should be entered in graphics mode. This program runs on a 48K machine. To run in 16K add line 5 CLEAR 65367: LOAD"". Then type in lines 1-5 and save on tape. Type NEW and enter the rest of the program.

To play the game, load in the first part and run it. This will then define the characters and load in the main listing.



PACMAN

RUNS ON A SPECTRUM IN 16K.

BY ANDREW BEALE

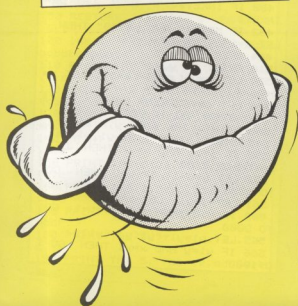
```
6:AT 16,6;"u";AT 16,22;"u"
410 PRINT AT 2,6;"u";AT 2,22;"u"
421 FLASH 0: FRINT AT 0,0;"SCOR
E";AT 0,5;
422 PRINT AT 0,24;"HI-SCORE";AT
2,24;hs
425 LET y1=8: LET x1=14
427 PRINT AT 21,0;" " : FOR
f=0 TO 1-1: PRINT INK 6:AT 21,f
#2;"h": NEXT f
430 PRINT INK 7;AT 11,12;"Read
y"
431 PRINT INK 6;AT 16,14;"j"
432 FOR F=1 TO 150: NEXT F: PRI
NT AT 11,12;"sbbbr"
440 PRINT INK 0;AT 10,4;"a";AT
10,24;"a"
445 NEXT f
447 PRINT OVER 1;AT 0,14;"a"
450 LET a$="jkinh"
460 LET x=14: LET y=16
465 LET a=1
470 LET b$="5"
477 PRINT AT 10,14;" "
```

```
480 IF INKEY#("<") THEN LET b$=
INKEY#
482 IF b$="4" AND b$(">") THEN
LET a=CODE b$-52
484 BEEP .01,1/5
510 PRINT AT y,x;" "
520 LET y=y+(a=2)-(a=3): LET x=
x+(a=4)-(a=1)
530 LET c$=SCREEN$(y,x): IF c$
"<>" THEN GO TO 700
540 PRINT INK 6;AT y,x;a$(a)
545 PRINT OVER 1;AT y1,x1;"a"
550 IF j=y1 AND m=x1 THEN LET
u=4: REM 3200
552 LET u=u-1: IF u>0 THEN GO
TO 3200
561 LET j=y1: LET m=x1
563 IF t>0 THEN LET t=t-1: GO
TO 3000
565 LET y1=y1+(y1<y)-(y1>y)
566 IF y1=y AND x=x1 THEN GO T
O 1000
```

```

570 IF SCREEN$(y1,x1)="" AND A
TTR (y1,x1)<>134 THEN LET y1=j
580 LET x1=x1+(x1<x)-(x1>x)
590 IF y1=y AND x=x1 THEN GO T
O 1000
600 IF SCREEN$(y1,x1)="" AND A
TTR (y1,x1)<>134 THEN LET x1=m
610 INK 4: IF t>0 THEN INK 7
620 PRINT OVER 1;AT y1,x1;"a"
630 GO TO 480
700 IF c$<>"." THEN GO TO 710
702 LET s=s+5: PRINT AT 2,0;s:
LET i=i+1: BEEP .01,30
704 IF i>177 THEN GO TO 2000
707 GO TO 533
710 IF ATTR (y,x)=0 THEN GO TO
800
715 IF ATTR (y,x)=134 THEN GO
TO 750
717 IF ATTR (y,x)<>1 THEN GO T
O 1000
720 LET y=y-(a=2)+(a=3): LET x=
x-(a=4)+(a=1): GO TO 535
749 REM got big dot
750 FOR g=30 TO 5 STEP -5: BEEP
.01,g: NEXT g: FOR g=5 TO 30 ST
EP 5: BEEP .01,g: NEXT g
760 LET t=30
770 LET s=s+25: PRINT AT 2,0;s:
GO TO 535
800 IF x=4 THEN LET x=23
810 IF x=24 THEN LET x=5
820 GO TO 533
1091 IF SCREEN$ (y,x)="" THEN
LET i=i+1
1092 PRINT AT y,x; OVER 1;"a": I
F SCREEN$ (y,x)="" THEN LET i=
i+1

```



```

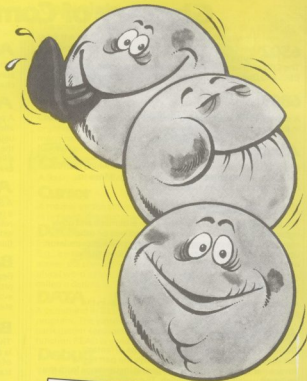
1095 IF t>0 THEN GO TO 1300
1100 FOR f=1 TO 4
1105 PRINT AT y,x;"a": FOR g=0 T
O 6 STEP 2: BEEP .01,g: NEXT g:
PRINT AT y,x;"p": FOR g=6 TO 0 S
TEP -2: BEEP .01,g: NEXT g: NEXT
f
1110 INK 6: DATA "i"," ","_"
1115 RESTORE 1110
1120 FOR g=30 TO 10 STEP -10
1123 READ a$: PRINT AT y,x;a$: F
OR f=1 TO f
1130 BEEP .015,f+g: NEXT f: NEXT
g
1140 PRINT AT y,x;" ": PAUSE 14:
BEEP .1,0: PAUSE 8: BEEP .1,5
1200 LET l=l-1
1210 IF l=-1 THEN GO TO 1500
1220 GO TO 425
1300 PRINT OVER 1;AT y,x;"a"
1301 FOR g=-10 TO 40 STEP 5: BEE
P .01,g: NEXT g
1310 PRINT INK 6;AT y,x;a$(a)
1320 LET s=s+200: PRINT AT 2,0;s
1330 LET y1=0: LET x1=14
1333 PRINT OVER 1; INK 4;AT 8,1
4;"a"
1335 LET t=0
1340 GO TO 535
1500 INK 7: PRINT AT 10,10;"GAME
OVER"
1510 IF s>hs THEN LET hs=s: PRI
NT AT 2,24;hs: PRINT AT 14,2;"(Y
ou have the high-score!)"
1511 PAUSE 50
1520 PRINT FLASH 1;AT 5,2;"Pres
s any key to begin..."
1530 IF INKEY$<>"" THEN GO TO 1
530
1540 IF INKEY$="" THEN GO TO 15
40
1600 GO TO 25
2000 PAPER RND*6+1: FLASH 1: CLS
2010 FOR f=0 TO 40 STEP 10: FOR
g=0 TO f STEP 3: BEEP .02,g: NEX
T g: NEXT f
2020 PAPER 0: FLASH 0: CLS
2040 RESTORE
2041 INK 6
2042 LET c=c+1: IF c>1 THEN GO
TO 3500
2050 FOR f=1 TO 31: READ a: READ
b: BEEP a-.15,b+6
2060 PRINT AT 10,f-1;" "; INK 6;
AT 10,f;"h"
2070 NEXT f
2075 RESTORE : LET g=0
2077 INK 4
2080 FOR f=0 TO 30

```

```

2090 READ a: READ b: BEEP a-.15,
b
2091 PRINT AT SIN g*3+10,f-1;" "
2095 LET g=g+.5
2100 PRINT AT SIN g*3+10,f;"a"
2110 NEXT f
2120 PRINT INK 6;AT 10,31;"k"
2130 INK 6: CIRCLE 199,147,28
2140 CIRCLE 230,120,8
2150 PRINT AT 8,30;"o"
2160 PRINT INK 7;AT 3,22;"Oh No
!"
2165 PAUSE 80
2170 CLS : INK 6: PRINT AT 10,31
;"j"; INK 4;AT 11,30;"a"
2180 FOR f=30 TO 0 STEP -1
2190 BEEP .005,50-f: PRINT AT 10
,f;"j " : NEXT f
2200 PRINT AT 10,0;" "
2210 GO TO 50
2299 STOP
3010 LET y1=y1+(y1>y)-(y1<y)
3040 IF SCREEN# (y1,x1)="" AND A
TTR (y1,x1)<>134 THEN LET y1=j
3044 LET x1=x1+(x1<23 AND x1>x)-
(x1>5 AND x1<x)
3050 IF SCREEN# (y1,x1)="" AND A
TTR (y1,x1)<>134 THEN LET x1=m
3100 GO TO 610
3200 IF u=3 THEN LET o=INT (RND
#4)
3210 LET x1=x1+(x1<23 AND o=0)-
(o=1 AND x1>5): LET y1=y1+(o=2)-
(o=3)
3220 IF SCREEN# (y1,x1)="" THEN
LET x1=x1-(o=0)+(o=1): LET y1=y
1-(o=2)+(o=3)
3225 IF x1=m THEN GO TO 580
3230 GO TO 610
3510 IF c=2 THEN GO TO 4300
3520 IF c=3 THEN GO TO 4400
4310 FOR f=0 TO 30
4320 READ a: READ b
4322 BEEP a-.15,b
4325 PRINT INK 6;AT 10,f;" h"
4328 PRINT INK 4;AT 8,31-f;"a "
4330 NEXT f
4332 PAUSE 20
4333 RESTORE
4337 FOR f=30 TO 16 STEP -1
4340 READ a: READ b
4342 BEEP a-.15,b+24
4348 PRINT INK 6;AT 10,f;"j ";
INK 4;AT 8,31-f;" a"
4355 NEXT f
4358 PRINT INK 7; FLASH 1;AT 9,
16;"!": INK 6: PRINT AT 10,16;"1
"
4360 PAUSE 50: PRINT AT 9,16;" "
;AT 10,16;"j": PAUSE 50: PRINT A
T 10,16;"k"

```



```

4363 FOR f=10 TO 21: PRINT AT f,
16;"k": BEEP .02,f: PRINT AT f,1
6;" "
4370 NEXT f
4373 PRINT AT 6,16;"?"
4375 PAUSE 60: GO TO 50
4410 FOR f=0 TO 14
4420 READ a: READ b: BEEP a-.15,
b
4422 PRINT INK 6;AT 10,f;" h";
INK 4;AT 10,31-f;"a "
4427 NEXT f
4430 INK 2
4434 PLOT 130,100
4440 DRAW -30,40
4450 DRAW 30,0,-PI
4455 DRAW 30,0,-PI
4460 DRAW -30,-40
4462 PAUSE 40: PRINT AT 10,15; I
NK 6;"j"
4470 FOR f=15 TO 0 STEP -1
4475 READ a: READ b: BEEP a-.1,b
4480 PRINT AT 10,f; INK 6;"h"; I
NK 4;"a "
4490 NEXT f
4492 LET c=0
4494 GO TO 50
7777 LOAD ""CODE USR "a",21#8: R
UN

```

Glossary of Computer Terms

6502

The CPU chip used in many popular home computers, e.g. BBC, and Oric, also in the Atari VCS games centre.

6809

A newer CPU chip with some similarities to the 6502. As used in the Dragon-32.

Absolute

A way of specifying movement on the screen which bears no relation to where you are moving from. E.g., Move to coordinates (10,9). See also relative.

Accumulator

The main register in the CPU on which arithmetic and other instructions operate. To use certain functions on other registers requires copying that register into the accumulator, operating on it and then returning the registers to their original state.

Address

A name, number or label indicating a position in the computer's memory.

Adventure

The name given to computer simulations of fantasy role-playing games. The machine plays the part of the adventurer which you control by giving instructions from the keyboard usually in plain English. The objective is usually to find treasure.

Algorithm

A detailed step-by-step description of a problem which can then be solved by translation into part of a computer program.

Append

A Basic command to load data or a program into the computer and add it on to the end of whatever is there already.

Argument

The value on which a Basic function operates. e.g., POKE has two arguments: an address and its contents.

Array

A way of storing related pieces of information in the computer, so that each element of the array shares a common variable name. E.g., instead of storing a list of addresses as A, B, C and their 'phone numbers as D, E, F, two arrays could be used so that the addresses would be labelled A(1), A(2), A(3) and the phone numbers as P(1), P(2) and P(3). Then, finding the phone number for a known address becomes simple.

ASC()

A Basic function to give the ASCII code of the character in the brackets. e.g.

PRINT ASC("A")

will print 65. If you use ASC on a string, the function will return the ASCII code of the first character in the string.

ASCII

American Standard Code for Information Interchange. A standard code used in most micros to represent 128 characters in a 7 bit code.

Assembler

A program which helps in writing machine code programs. It allows the programmer to enter machine code instructions using mnemonic codes which are easier to remember than the hex values. e.g., in 6502 machine code one way of loading a value into the accumulator is by using hex code A9. With an assembler, the load-accumulator instruction is LDA.

ATTR

A Basic function on the ZX Spectrum used to find data about a certain point on the screen. For a pair of coordinates it returns the colour of the screen at that point, whether it is in extra-bright mode and whether that particular character is flashing or steady.

Basic

Beginners' All-purpose Symbolic Instruction Code. A programming language invented in America in 1964 and available in almost all computers from those running power stations to those playing Space Invaders.

BAUD RATE

The speed at which data bits are sent down a wire. Baud rate is approximately equal to bits per second; so with an average of ten bits per byte an interface working at 300 baud can transmit or send about 10 characters per second (or CPS.)

BEEP

The command used in Basic on the ZX Spectrum and Jupiter Ace to produce sound from the built-in speaker. The two arguments are pitch and duration, where pitch is relative to middle-C and duration is specified in a range from 0 to 255.

Binary

Base two. The way in which all information is represented in the computer internally. The only digits used are 1 and 0 which correspond to an electrical signal either being present in a wire or not.

Bit

A short form for binary digit, a single 1 or 0.

Border

An area round the edge of a playing screen which can be a different colour from the main playing area. Used mainly to ensure that the whole of the game is visible on the screen.

Bright

A Basic command to print on the screen in varying brightness. An Atari 800 has 16 variations while a Spectrum has two.

Bug

An error in a program which prevents it from working properly.

Byte

A short form of Binary Eight, used to describe a set of eight bits.

Cassette

A (usually) plastic case containing magnetic tape on which programs can be stored using two frequencies. The computer can "listen" to a cassette and reconstruct the program at a later date. One frequency is used to represent a 1 and another for a zero (see binary).

Centronics

A form of interface for computers used in connecting printers. The centronics interface is a parallel device as opposed to the RS232 interface. It uses eight separate wires for the date and a complete byte is sent at a time. Originally used in a range of printers by Centronics, this interface is now standard or optional in most micro printers.

Character

A letter, number or other symbol which is represented by a unique code in the computer. The usual number of characters is up to 255, which represent numbers, letters and other specialised control characters which mean special things like "turn on printer" or "change to upper or lower case".

Character set

The range of characters which a computer is able to produce. Some machines have special character sets with mathematical signs or non-English languages.

Chip

An electronic circuit reduced photographically and produced on a piece of silicon of around 1/4 inch square. The final version of a chip is much larger to accommodate the pins which are used to connect the chip to the outside world.

CHR\$()

A Basic function to output a character whose ASCII code is known. E.g.,

PRINT CHR\$(65)

will print a capital letter A.

Chunky graphics

The term used to describe graphics made from whole characters as opposed to pixels. These characters are often whole blocks with one or more quarters removed. As found on machines like the ZX81.

CLOAD

A Basic command to load a program from a cassette as opposed to loading from disk.

Command

A statement in Basic may be either a command or a function. A command tells the computer to do something and does not expect a numerical or alphabetical result, while a function does. So addition and PEEK are functions but POKE and LIST are commands.

Compiler

A program which converts a program written in a high level language such as Basic to machine code. This may be useful because machine code programs are hard to write but run much faster than those in Basic. Compilers are often used in the writing of game programs for this reason. A compiler differs from an interpreter because an interpreter translates each line as it is encountered, which may be many times during a run, while a compiler translates each line once, at the start, before the program is run.

Copyright

The area of the law which allows the originator of a piece of work the exclusive right to make copies of that work. No copyright laws specific to computer programs exist at present. The difficulties arise over the idea of a program as much as the program itself. Because the author of a program is entitled to a payment for each copy sold, copying of programs illegally is considered theft.

CPU

Central Processing Unit. The main ~~part~~ in a computer which organises the work of all the other components in the machine as well as performing logical and arithmetic functions.

CSAVE

A Basic command to save a program onto cassette.

Cursor

A marker on the screen of a computer to show where, if a key is pressed, the next character will appear.

Data

Information which a program needs before or during a run. E.g., a program to draw a square needs to know where on the screen the corners are to be. Note that data in this sense is a plural word as in a list of data. A single item in that list is called a datum.

DATA

A command in Basic which is used to supply data to the program. The word DATA is followed by the data itself, with each datum separated by a comma. To access this data the function READ is used.

Debug

To ensure that a program works properly by removing the bugs from it.

Decimal

The most common way of representing numbers. It uses the digits 0 to 9. Also known as base 10, or denary.

DIM

A command used in Basic to reserve space in the computer's memory for an array. Most machines will automatically allow for an array to have 10 elements so if you plan to have anything larger you must use DIM. To reserve enough space for array D to have 75 elements, use the command DIM D(75). Short for DIMension.

DIN

Deutsche Industrie-Norm. A German-designed standard of connections used extensively in audio equipment and, therefore, also in the connecting of cassette recorders to computers. A DIN connector usually has between three and seven connecting pins.

Disk (or Disc)

An alternative medium to cassettes on which computers can store programs and data. It consists of a thin circle of plastic coated in a similar substance to cassette tape and housed in a flexible protective plastic jacket, which is why they are often called floppy disks or floppies. They are available either 5.25 or 8 inches across and need a special machine called a disk drive for them to be used.

Disk Drive

The machine which is used to get information on and off disks. Once a disk is inside the drive it is rotated against a head similar to that in a cassette recorder. Disk storage is up to 50 times faster than using cassettes but is also more expensive. An average drive costs 10 times more than a cheap portable cassette recorder.

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Edit

To alter part of a program while leaving the rest unchanged. This can range from the addition of a single character to the removal of a large block of the program.

Element

A single part of an array identified by the array's name and the element's unique subscript.

END

A basic command to tell the computer that the end of the program has been reached.

ENVELOPE

A command used in Basic on the BBC micro to define the characteristics of a note which will be produced by the BBC's SOUND command. ENVELOPE defines the actual wave form of the note and can be used to simulate the sound of various instruments.

EPROM

Erasable Programmable Read-Only Memory. A ROM chip which can be re-used by exposing it to ultra-violet light which erases it.

File

A collection of related pieces of data stored for use by the computer on tape or disk.

Fixed point

The way the computer stores numbers. Instead of moving the decimal point around it is always placed after the first digit. Then the entire number is multiplied or divided by a factor of 10 to make it the correct value. For example ...
 $1/10 = 10^{-1}$
so 0.168 in fixed point format would be 1.68×10^{-1}

Floating point

The normal way of specifying decimal fractions. The decimal point is placed between the whole part and the fractional part of the number.

Floppy disk

see Disk.

FOR

A Basic command to perform part of a program a certain fixed number of times. The part to be repeated is placed between a FOR statement and a NEXT statement.

Forth

A computer programming language. It is the language of the Jupiter Ace and is also available for some other micros. Although slightly harder to learn than Basic it runs much faster and is useful for writing games programs. Was originally to be known as "fourth" as in fourth-generation language, but the computer on which it was invented only allowed 5 characters for a program name!

Function

see Command.

GET

A Basic function to get a single key press from the keyboard.

GOSUB

A Basic command which jumps to a certain part of the program called a subroutine. These are useful where the same part of a program may be "called" several times. The subroutine may consist of several program lines and will continue until it finds a RETURN statement. Then control returns to the line after the initial GOSUB.

GOTO

Jumps to a certain point in a Basic program and continues to run from that point.

Graphics characters

Characters which the computer can print apart from normal letters and numbers. These can be used in blocks to form pictures. See also Characters.

Hardware

The physical components of a computer which can actually be seen, as opposed to programs and data which cannot.

Hexadecimal

(or Hex.) A way of specifying numbers in base 16. Hex uses 16 digits, namely 0 to 9 and then A to F. So eleven in hex is B, and hex 10 is 16 in decimal.

High level language

A programming language in which the language itself does some of the work for you. For example, Basic is a high level language because most of the commands available in Basic are not available directly in the computer but must be broken down into many simple instructions by the Basic interpreter.

INK

Used in Spectrum and Oric Basic to specify the colour in which printing on the screen will be.

INKEY

Similar to GET. As used on Sinclair computers.

INPUT

A Basic function to get a key or keys from the keyboard. Keeps getting keys until the RETURN or ENTER key is pressed.

INT

A Basic function to strip a number of its decimal places and leave the integer part. Note that INT will not round the number up or down so INT(5.01) is the same as INT(5.99).

Integer

A number, positive or negative, which has no fractional part. 1, 2, 3, -9, -96 are integers, whereas 7.5 is not.

Interpreter

The program which decodes the statements in a high level language. It converts the lines which you type into simple steps which the CPU can understand.

Jack plug

A connector used for linking cassette recorders to computers.

Joystick

A hand-operated controller for video games. A short stick can be pushed in 4 or 8 directions which controls the object on the screen. There is also usually a "fire" button.

K (or Kb.)

Stands for Kilobytes or a 1024 bytes. The unit used to measure the size of a computer's memory. Usually goes up in multiples of 4 or 8. One byte is equal to about 1 character.

Language

The set of commands with which a computer is programmed. Basic is the most common language for beginners but special languages also exist for certain jobs. Cobol is mainly used for writing business programs while Fortran is a science and maths-based language.

LEFT\$

The Basic function to take the leftmost characters from a string, thus LEFT\$(S\$,5) would take the first five characters of string S\$.

LET

Used in Basic to assign a value to a variable, eg., LET X=10 or LET S\$="HELLO".

Line number

Each line in a Basic program must have a line number. When the program is run the lines will be executed in numerical order, and not the order in which they were typed in.

LIST

A Basic command to produce a copy of the current program on the screen or printer.

LLIST

List the Basic program on the printer.

LOAD

Read a program into the computer from cassette or disk.

Location

The actual position in memory where a byte is stored.

Low level language

A language in which a limited number of commands can be handled directly and they must be broken down and simplified by the programmer.

Lower case

The small, non-capital letters available on a keyboard. The characters produced by pressing a key without holding down a shift key.

LSI

Large Scale Integration. Getting a lot of components into a small area on a chip.

LPRINT

A Basic command to output to the printer as opposed to the screen.

Machine code

The lowest level language available on a computer. It is the language which the CPU can directly understand and because it does not need an interpreter, machine code programs run very fast but are complicated to write and debug. A typical machine code program may run 100 times faster than its Basic equivalent.

Memory map

The way in which the computer organizes its memory. The memory map states where the machine holds its program, variables and Basic interpreter. Most computers also hold the contents of the screen in memory as well so that altering that area of memory will change the contents of the screen. This is known as having a memory-mapped screen.

Merge

Loading a program or data without destroying the one already in memory. Where program lines are duplicated, the convention is for the incoming line to replace the one already there.

Microprocessor

A single chip which can get information in, process it and output it.
Similar to CPU.

Microsoft

A software company responsible for writing the Basic interpreters in many micros.

MID\$

A function in Basic to extract a certain part of a string starting from a certain position and going on for a certain number of characters. MID\$(A\$,5,3) will be a string made up from A\$ starting at position 5 and continuing for 3 characters.

Mnemonic

A short code which helps in remembering something. For example, in Z80 machine code, the code to compare the accumulator with a value is known by the mnemonic CP A.

MODEM

Short for MOdulator/DEModulator. A peripheral to convert the signals sent from a computer to the correct frequencies to allow them to be sent over the telephone lines and fed into another computer.

Monitor

A device used as the display for a computer. It is similar to a TV screen but is of much higher quality and costs more. Monitors cannot normally receive TV signals. A typical colour monitor costs at least twice the price of a portable colour TV.

Monochrome

Single colour. A computer display which cannot show more than one colour. Usually black and white but can also be green on black, or orange on black.

Network

A number of computers connected together such that each can communicate with any other and that they can share peripherals which would be too expensive to provide for each computer.

NEW

A Basic command to tell the computer to forget the current program and to expect another one.

NEXT

see FOR.

Nybble

Half of a byte (4 bits.) A byte is made up from two nybbles. The first 4 bits are called the high nybble and the last four are called the low nybble.

Operating system

The program in the computer which controls the coordination of all the components. Every computer has an operating system. Some operating systems are common to many computers subject to minor alterations. One such system is CP/M which runs on many Z80 based machines. CP/M controls the loading and saving of programs and also control of the disc drive, keyboard and printer. Commands to load and save on one CP/M machine will be almost identical on any other machine with the same operating system.

OVER

A Basic command to print on the screen on top of the character which is already there.

PAPER

A command on the Spectrum and Ace to specify the colour of the screen.

PEEK

A basic function to look at the contents of a certain location in memory. For example, the character at the centre of the screen on a PET is held in memory location 33268. So to see what character is at the centre of the screen you would use PEEK (33268).

Peripheral

Additional hardware used with a computer but not an integral part of it. Eg. a disk drive, cassette recorder, printer or joystick.

Phono plug

A connector commonly used to connect a computer to a TV set or monitor.

Pixel

Short for Picture Element.
The smallest dot which can be displayed by a computer. Pixels can be used individually or be placed in blocks to make alphabetic or graphics characters.

POKE

A Basic command to load a certain value into a known location in memory. The syntax of the command is:
POKE address, value
so to put character 46 (a full stop) at the centre of the screen on a PET, type POKE 33268,46.
See also PEEK.

Printer

A peripheral used to produce output onto paper which can then be stored, as opposed to output on a VDU which cannot.

Program

A list of instructions which will be executed sequentially by the computer.

PROM

Programmable Read-Only Memory.
A ROM chip which can be programmed by a special PROM programming machine. One programmed a PROM cannot be altered or erased.

RAM

Random-Access Memory.
Memory in a computer which can be altered and is therefore used to hold the current Basic program and data. RAM memory loses its contents when the power is turned off.

Raster scan

The way in which a TV picture is produced in the set itself. A single dot scans across the 625 horizontal lines which make up the picture. Whatever the display on the screen, the dot always follows the same course. It goes so fast that the display appears steady and stationary.

READ

Used in Basic with a DATA statement. It reads one item from the DATA list each time it is called.

Register

A memory location built into the CPU chip itself, used to hold data temporarily to perform arithmetic and logical functions.

Relative

A way of specifying direction which does not depend on where you are going but on where you are coming from. Eg., "move 7 positions to the left" is a relative direction.
See also Absolute.

RENUMBER

A Basic command to alter the line numbers of a program so that they all run in even, neat steps. RENUMBER should also alter any GOTO or GOSUB statements as well to enable the program to run correctly.

Resolution

The number of pixels which a computer can display on the screen at one time. The higher the number, the better quality graphics can be produced.

RESTORE

Used in Basic with READ and DATA. RESTORE sets the data pointer back to the beginning so that the next READ statement will start reading from the first item in the DATA statement.

RETURN

See GOSUB.

RIGHT\$

Similar Basic command to LEFT\$ but takes the last characters from a string. Eg., RIGHT\$("therefore", 4) would be "fore".

RND

A Basic function to produce a random number, used in games and simulations.

ROM

Read-Only Memory.

A memory chip whose contents cannot be altered. ROMs are used to hold such things as the Basic interpreter and the operating system.

RS232

The name of an interface used for connecting computer peripherals together. All devices with RS232 interfaces should by definition have the same connections via a 25pin D-plug although some manufacturers vary these for their own use. The RS232 is a serial interface which means that although there are 8 bits to a byte the bits are sent one at a time down a single wire.

See baud rate.

RUN

A Basic command to start the execution of the current program in the computer.

SAVE

A Basic command to record the current program on to cassette or disk, so that it can be re-used at a later date.

Scroll

Moving the contents of the screen up or down by a single pixel or character at a time. Some programs also scroll the screen sideways.

Shoot-'em-up

A video game where the object is to shoot at aliens which are above you. The first such game was Space Invaders.

Software

Programs for a computer. The part of the computer which cannot actually be seen (unless printed out on screen or printer) See also Hardware.

String

A set of between 1 and 255 characters assigned to the same variable name. Some Basics allow strings of unlimited length, but most allow 255, which is the highest number which can fit in 1 byte.

Subroutine

A frequently-used part of a program, placed, usually at the end, which can be called whenever needed. Thus although it is used frequently, it only needs to be typed in once. See also GOSUB.

Subscript

A number used to identify single elements in an array. Although each element has the same variable name they have different subscripts. Eg.

LET A\$(7) = "COMPUTER"

where the variable name is A\$ and the subscript is 7.

Syntax

The composition of a statement, its arguments and any punctuation. Eg., a certain Basic statement may need two arguments, separated by commas and a semi-colon at the end. If this is not typed correctly it will be rejected by the computer with a "SYNTAX ERROR" message.

Computer and Video Games Yearbook

TRACE

A command in Basic which prints out the line number of each statement as it is executed. This can be useful in debugging to check that the program lines are being executed in the correct order.

Upper case

The characters available on a computer by pressing a key at the same time as pressing a shift key. The shift key usually punctuation and graphics for the others.

User defined graphics

Graphics characters made up of a block of pixels which can be designed by the user. Custom characters can then be made, like a Pacman figure or a space invader.

User friendly

Describes a program which is easy to operate by non-computer minded people.

A good user-friendly program will help the operator and should produce helpful messages in response to mistakes from the user.

USR

Used to transfer execution from the Basic program being executed to a machine code routine written by the user. This may be done if a certain part of the program needs to be executed very fast or for certain things which Basic cannot do.

VDU

Visual Display Unit.

A monitor or TV used as the output device for a computer.

Vector Scan

The alternative to raster scan. Instead of scanning the whole screen, the dot traces out the shape of whatever it is required to produce. Programming such a device needs great care because if the dot is allowed to stop for just a fraction of a second it will burn straight through the screen! Vector scan produces clearer, smoother graphics.

As used in some arcade games like Atari's Asteroids, and also in the Vectrex.

Verify

Used in Basic to compare the program currently in RAM with one on tape or disk, to ensure that it has been SAVED correctly.

Word processor

A program to accept text from the keyboard and help in producing written documents. A good word processor will align the text to the margins, store standard letters on disk etc. Separate files of addresses can be stored so that a single letter need only be in typed once but can be printed many times with different addresses on top.

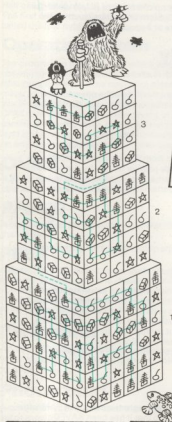
Z80

A common CPU used in many micros including the Spectrum and Sharp MZ80K.

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WHO	DIRECTION	LOCATION	WHAT WITH
MEDUSA	SOUTH	CAVES	EVIL SPELL
BEELZEBUB	WEST	FOREST	SWORD
HYDRA	NORTH	LAKE	FIRE
VAMPIRE	X	MOUNTAIN	GOLD CASKET
GORGON	EAST	SWAMP	POISON

DAMAGED GOODS

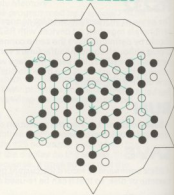
Top Layer: BERZERK TRICKSHOT
FROGGER
2nd Layer: GALAXIANS PACMAN
UTOPIA
3rd Layer: PHOENIX DRACULA PIT.
FALL
4th Layer: MEGAMANIA STAR-
MASTER DEFENDER

SNACKBITE

I	C	E	D							
D	I	E	T							
T	I	N								
N	I	E	C	E						
E	N	T	I	C	E	D				
D	I	N	T							
T	I	C								
C	E	N	T	I	P	E	D	E		
E	D	I	T							
T	I	P								
P	E	N	C	E						

善	RIGHT	善	LEFT	善	UP
☆	LEFT	☆	UP	☆	DOWN
□	UP	□	DOWN	□	RIGHT
○	DOWN	○	RIGHT	○	LEFT

PATRIOTIC PACMAN



SOLUTION TO PATRIOTIC PACMAN
64 is the number of dots in the longest path.

PUZZLE PROG

At the time of going to press 18 moves is the best solution known and it can be achieved as follows:

2.1.2
0.3.2
3.0.0
1.0.2
0.1.1
0.2.2
1.1.0
1.1.2
2.0.2
3.1.1
1.3.0
3.1.2
1.1.2
2.0.2
3.1.0
0.2.1
3.3.2
0.2.0



DUCKSHOOT

NIGEL:
JANE:
TRACEY:
The common total is 71.

25	20	10	10	5	1
50	10	5	3	2	1
25	20	20	3	2	1

Muppet creator Jim Henson put his puppeteers to work on a fantasy epic last year.

He created a land peopled by the weird Mystics, cruel Skeksis and gentle Pod People. Through this world two Gelflings are sent on a quest to break the rule of the Skeksis and return peace to the land.

A computer program of the quest was released and we at Computer and Video Games asked readers to come up with their own graphic representations of the weird and wonderful creatures from the world of the Dark Crystal.

Many a reader has sent us a unique creation of a

head of Aughra, one of the "stars" of the film, flown over from America, the book of the film — beautifully illustrated by artist Brian Froud — and an LP of the film score.

When Bruce McNally, Henson Associates' creative director came in to judge the entries, he found a runaway winner in Alan Outter's marvellous representation of Jen the Gelfling on the BBC.

We show a screen picture of the winning entry over the page and for those who are feeling brave enough to key it in we reproduce the listing to show the work

The Dark Crystal Recreated

By Alan Outter

Runs on the BBC Model B

```
10 MODE5:GCOL0,4:MOVE 0,0:MOV
E1280,0:PLOTE5,0,1024:PLOTE5,128
0,1024:X=24
20PRINTAB(0,10):"JEN":FORI=1
TO10000:NEXT I:CLS
30VDU19,6,4,0,0,0
40VDU19,3,3,0,0,0
50 VDU19,0,0,0,0,0
60VDU 23,6202;0;0
700NERROR GOT0120
80 B=4:X=X+8:MOVEK,0
90GCOL0,B:READ A,B:DRAW X,AB
-220
100IF A=180 THEN 80
110GOTO 90
120END
130DATA140,1,143,4,149,1,151,4,
180,4
140DATA127,1,139,4,143,1,149,4,
180,4
150DATA124,1,137,4,142,1,144,4,
180,4
160DATA123,1,125,3,133,1,142,4,
180,4
170DATA120,1,123,3,138,1,143,4,
180,4
180DATA119,1,122,3,140,1,146,4,
180,4
190DATA114,3,141,1,147,4,180,4
200DATA110,3,143,1,147,4,149,1,
152,4,160,1,161,4,180,4
210DATA106,3,144,1,147,4,148,1,
161,4,180,4
220DATA98,0,99,4,104,3,145,1,1
48,3,154,4,162,1,165,4,169,3,178
5,172,4,180,4
230DATA97,0,100,4,102,7,138,3,
150,1,154,3,159,1,164,4,169,3,17
0,5,171,4,180,4
240DATA97,0,100,4,101,7,102,0,
108,7,110,0,113,7,114,0,115,7,13
8,3,149,1,154,3,157,1,161,4,162,
1,167,3,169,5,170,4,180,4
250DATA95,0,104,1,107,0,109,6,
111,1,115,0,116,7,141,3,159,1,16
0,3,162,4,167,5,170,4,180,4
260DATA89,0,94,1,95,0,98,1,104
3,106,1,109,6,112,1,114,0,115,1
```

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,117,0,118,6,133,7,144,3,161,5,1
63,4,164,5,167,4,180,4
270DATA 58,0,70,4,75,0,77,4,87
0,94,1,95,0,97,1,101,3,108,1,11
0,0,111,3,112,6,113,1,114,0,115,
1,117,0,118,7,132,6,133,7,145,3,
161,1,163,3,164,1,169,5,171,4,18
0,4
280DATA46,0,94,1,95,7,96,0,97,
1,102,3,105,1,106,6,107,3,108,7,
110,1,112,3,113,1,115,0,116,6,11
7,1,118,0,119,6,131,7,133,6,134,
7,148,3,161,1,163,3,164,1,169,5,
171,4,180,4
290 DATA45,0,94,1,95,0,97,1,10
2,3,105,1,106,7,107,3,108,1,111,
0,112,3,113,1,116,0,117,1,118,0,
119,6,126,7,130,6,131,7,133,6,13
4,7,148,3,161,1,162,3,167,1,168,
5,169,4,180,4
300LISTDATA44,0,50,1,51,0,92,1
,93,0,95,1,97,5,99,7,105,1,107,3
,108,1,113,3,114,1,116,0,117,5,1
19,0,120,7,124,6,125,7,129,6,130
7,148,3,169,5,170,4,180,4
310DATA43,0,50,1,52,0,55,1,56,
0,66,3,90,1,95,5,97,7,99,6,103,7
,105,1,107,7,109,1,111,0,112,1,1
16,0,117,1,119,0,120,7,124,6,125
7,128,6,130,7,150,3,165,4,169,3,
174,4,180,4
320DATA42,0,51,1,53,0,54,1,56,
0,60,1,62,0,75,1,77,0,78,1,82,0,
86,3,89,7,91,1,95,6,96,7,99,6,10
2,7,105,1,106,5,107,7,109,1,112,
3,113,1,116,0,117,1,118,0,119,7,
136,6,137,7,151,3,164,4,165,5,16
6,4,170,5,172,4,180,4
330DATA42,0,52,1,53,0,54,1,56,
0,60,1,62,0,75,1,84,0,87,3,88,7,
90,5,91,1,95,5,95,7,105,1,106,5,
107,7,109,1,112,7,113,3,114,1,11
6,0,117,7,130,6,131,7,134,6,135,
7,137,6,139,7,150,3,170,5,171,4,
180,4
340 DATA41,0,52,1,54,0,55,1,57
0,58,1,61,0,66,1,68,0,74,1,75,5,
77,1,79,5,80,1,85,0,87,3,88,5,8
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9,1,92,5,93,7,95,6,102,7,105,1,1
07,7,109,1,111,7,113,3,114,1,117
7,131,6,132,7,137,6,142,7,151,3
,170,4,172,5,176,3,179,4,180,4
350DATA40,0,55,1,56,0,57,1,60,
0,61,1,67,0,70,1,72,5,74,1,75,3,
80,5,85,1,86,0,87,1,88,7,90,6,95
7,104,1,107,7,108,0,109,1,111,7,
114,1,116,7,121,6,124,7,131,6,1
33,7,134,6,135,7,137,6,140,7,149
3,169,5,172,3,174,5,176,3,179,4
,180,4
360DATA40,0,42,1,50,0,55,1,56,
0,57,1,60,0,61,1,67,0,70,1,72,5,
74,3,75,7,80,5,82,7,94,6,103,1,1
84,0,105,1,106,7,108,0,109,1,111
7,113,1,115,6,126,7,128,6,133,7,
137,6,139,7,150,3,160,5,173,3,1
75,5,176,3,177,4,180,4
370DATA41,0,43,1,52,0,55,1,57,
0,58,1,71,5,72,3,78,7,90,0,92,7,
103,1,104,0,105,1,108,0,111,7,11
2,1,115,6,126,7,128,6,132,7,137,
6,139,7,148,3,163,5,167,3,170,4,
171,5,172,3,177,4,180,4
380DATA41,0,43,1,55,0,57,1,70,
5,75,7,76,3,77,1,85,0,86,4,93,0,
99,7,101,1,102,0,104,1,107,0,108
,1,111,7,112,1,115,5,116,7,120,6,
124,7,131,6,132,7,147,3,159,1,1
65,3,166,1,169,3,171,5,173,4,180
,4
390 DATA42,0,46,3,47,5,54,1,56
0,58,5,60,1,63,5,66,1,69,5,70,3
,73,7,77,5,81,7,83,0,84,4,99,0,1
00,1,102,0,104,1,114,7,115,0,117
6,120,7,123,6,129,7,130,6,131,7,
147,3,159,5,168,3,171,5,173,4,1
80,4
400 DATA42,0,46,3,54,5,57,0,59
5,60,1,64,5,65,7,66,5,67,1,69,7,
70,1,73,7,75,7,78,7,80,0,84,4,9
8,1,99,0,102,1,103,0,104,1,105,0,
107,1,112,0,115,3,116,1,120,7,1
23,6,129,7,130,6,133,7,148,3,159
5,163,1,168,3,170,4,171,5,173,4,
180,4
410DATA40,3,60,5,63,1,66,5,67,
1,69,5,70,3,71,0,77,4,97,1,99,0,
```

101.1,102.0,103.1,104.0,105.1,111
2.0,113.1,115.0,119.1,120.7,138.
3,158.5,161.3,163.5,165.3,167.1,
169.3,171.4,172.5,174.4,180.4,
420 DATA44,0.46,1.51,0.57,3.58
0.59,3.60,0.62,3.63,0.68,4.90,3.
96,1.97,0.102,1.103,0.104,1.105
0.108,1.109,0.113,1.115,0.116,1.
137,3.159,1.158,3.164,5.163,3.1
66,5.172,4.173,5.176,3.177,1.178
3.179,4.180,4

430DATA44,0.49,1.55,0.57,3.59,
0.60,1.61,5.62,3.63,0.64,5.66,3.
68,0.69,1.70,4.89,1.90,3.91,0.94
3.95,1.100,0.101,1.103,0.105,1.
109,0.112,1.114,7.116,3.125,7.13
4,3.158,1.163,3.165,5.166,3.167
4.172,3.175,4.176,5.178,4.180,4
440DATA44,0.51,3.55,0.56,3.59,
0.60,1.61,5.62,3.64,0.65,5.66,3.
68,0.69,1.70,4.89,1.90,3.91,0.94
1.99,0.102,1.103,0.106,1.107,0.
108,1.112,7.115,3.148,5.161,4.16
2,5.163,3.166,5.167,3.168,4.175,
3.176,4.180,4

450DATA46,0.49,1.53,0.55,1.57,
0.60,1.62,5.63,0.64,5.65,3.66,1.
67,0.68,3.69,0.70,1.73,4.88,3.89
0.91,3.92,0.93,1.101,0.107,1.10
0,7.113,3.146,5.152,3.156,1.159,
4.162,1.163,3.166,5.167,3.169,4.
175,3.176,4.180,4

460DATA45,0.50,1.57,0.58,1.59,
5.62,3.63,0.64,5.66,3.68,0.69,3.
70,0.72,1.75,4.86,3.87,1.89,0.92
3.94,1.98,0.104,1.107,4.110,3.1
44,5.147,1.150,3.151,4.155,3.159
4.163,1.164,3.166,4.169,3.170,4.
180,4

470DATA45,0.55,1.58,0.60,3.62,
1.63,5.64,3.66,1.67,0.68,3.70,0.
71,3.74,1.75,0.76,1.77,4.85,3.86
1.88,0.91,1.95,3.97,0.101,1.104
3.110,3.125,1.130,3.141,5.146,1.
147,4.157,3.159,4.175,3.176,4.1
80,4

480DATA46,0.54,1.55,0.60,3.62,
0.63,1.67,0.68,3.70,3.74,1.75,
75,0.76,3.78,1.79,3.80,4.82,3.85
1.86,0.90,3.92,1.94,0.100,3.101
1.102,4.121,5.126,4.132,3.139,5.
145,4.175,3.176,4.180,4

490DATA47,0.56,3.58,0.62,1.66,
0.67,3.70,0.71,3.74,1.75,0.76,3.
83,1.85,0.90,3.94,1.95,0.100,3.1
02,1.103,4.175,3.178,4.180,4

500DATA48,0.57,3.59,1.64,0.67,
3.68,0.69,7.70,0.71,3.75,1.76,0.
77,3.81,1.82,0.85,3.91,0.92,1.93
0.96,1.98,3.103,4.114,0.116,4.1
76,3.177,4.180,4

510DATA51,0.64,7.65,0.69,3.74,
1.75,0.76,3.80,1.81,0.85,3.89,0.
92,1.96,3.98,0.108,4.112,0.118,6.
127,4.180,4

520DATA53,0.62,1.64,0.68,1.69,
3.75,1.76,0.77,1.78,0.85,3.88,0.
90,1.91,0.92,3.98,0.100,3.101,6.
103,7.109,0.110,7.115,6.118,7.12
2,6.126,0.127,6.132,4.180,4

530DATA55,0.68,1.69,3.72,7.74,
1.75,0.76,1.77,0.80,1.83,3.87,0.
90,3.95,0.96,1.99,0.105,7.118,6.
115,7.118,0.129,6.124,0.125,6.12
6,7.127,0.129,7.132,0.134,6.138,
4.180,4

540DATA56,0.66,1.68,3.71,1.72,
7.73,1.75,0.76,1.77,0.78,1.79,3.
85,0.89,1.90,3.95,0.97,1.98,6.10
4,0.108,6.110,0.117,1.119,6.139,
7.137,0.138,6.140,4.180,4

550DATA54,0.63,1.64,0.70,1.73,
0.77,1.79,3.83,1.84,0.87,1.88,3.
91,0.92,1.93,0.94,0.119,7.122,6.
123,0.137,6.138,0.140,6.142,4.18
0,4

560DATA54,0.58,5.60,0.70,1.72,
0.77,3.81,0.83,1.85,0.87,3.90,0.
91,1.92,3.95,6.100,0.135,6.136,0.
140,6.141,0.144,4.180,4

570DATA47,1.48,0.55,5.56,1.61,
0.65,1.70,0.75,1.76,3.80,7.82,0.
84,1.86,3.89,0.90,1.92,3.94,7.98
6.100,0.121,3.122,7.127,0.135,6.
138,0.139,6.144,0.147,4.180,4

580DATA46,1.48,0.53,1.61,0.63,
1.69,0.74,1.75,3.79,0.84,3.88,0.
89,1.91,3.92,6.109,0.116,3.120,7.
130,0.137,6.140,0.143,6.145,0.1
48,4.180,4



590DATA38,1.47,0.50,5.54,1.55,
3.59,1.61,0.63,1.68,0.72,1.74,3.
78,1.79,0.84,3.89,1.91,3.92,0.98
6.104,0.115,3.118,7.122,3.123,7.
130,0.136,6.141,0.142,6.144,0.1
50,4.180,4

600DATA32,1.47,5.51,7.52,3.55,
5.59,0.61,3.64,0.71,1.72,3.77,1.
81,3.85,1.90,0.111,3.116,7.119,3.
120,7.122,3.125,7.131,0.140,6.1
48,0.150,4.180,4

610 DATA30,3.36,1.40,0.47,5.49
1.51,3.59,5.59,0.61,3.63,0.70,1.
71,3.74,1.79,0.80,3.84,0.85,1.9
1,0.110,3.116,7.118,3.125,1.139,
0.148,6.149,0.150,6.151,0.152,4.
180,4

620DATA29,3.35,1.41,0.46,5.50,
3.58,0.62,3.64,0.66,1.69,3.72,1.
74,0.76,1.78,0.79,3.84,0.85,1.86
3.87,1.94,0.109,3.118,7.115,3.1
25,7.132,0.133,7.136,1.139,0.140
6.144,0.146,6.149,0.152,6.153,0.
154,4.180,4

630DATA31,0.46,5.52,3.56,0.60,
3.61,0.62,3.64,0.65,1.66,3.72,0.
79,3.82,0.83,1.84,3.88,1.92,3.94
0.96,3.98,3.103,0.109,3.110,7.1
15,1.116,3.125,7.130,3.131,0.132
7.134,0.135,7.137,1.140,6.146,0.
148,6.151,0.152,6.153,0.154,4.1

80,4
640DATA31,0.46,1.49,3.55,0.60,
3.61,0.62,3.63,0.64,1.65,3.69,0.
76,3.88,0.82,1.84,3.94,0.96,5.97
3.98,5.101,0.103,3.107,7.108,3.
110,7.114,1.115,0.116,1.117,3.12
0.7.123,3.126,7.129,1.130,3.131,
0.132,2.134,0.135,3.137,1.139,0.
146,4.143,7

650 DATA45,6.147,0.148,7.150,
6.151,0.152,6.153,6.154,4.180,4

660DATA34,3.38,1.41,0.45,1.50,
7.51,5.54,0.55,6.56,0.62,6.65,1.
66,3.68,0.74,3.76,0.81,1.83,3.83
1.1,3.93,7.94,0.95,5.97,3.95,5.
99,0.105,7.107,5.109,3.109,7.11
4,1.115,0.117,1.118,7.121,0.122,
3.123,7.124,3.125,7.129,1.130,3.
132,2.133,7.134,2

670 DATA135,0.136,3.137,7.141,
0.143,6.144,7.148,0.150,6.153,0.
155,4.180,4

680DATA28,3.35,1.39,0.45,1.51,
3.55,0.62,3.65,7.66,0.74,3.77,0.
81,1.82,3.84,1.90,3.93,0.94,5.95
3.96,5.97,0.99,3.101,0.103,1.10
5,3.106,7.107,5.108,3.109,7.113,
1.115,0.117,1.121,7.122,3.123,7.
129,5.130,3.132,2.133,0.134,2.13
5,0.136,3.137,7

690DATA138,5.140,6.141,0.142,6.
144,7.147,6.148,0.150,6.154,0.1
55,4.180,4

700DATA38,3.34,0.44,3.54,0.63,
3.65,0.71,3.77,0.78,1.79,3.83,0.
84,1.87,3.88,0.89,3.90,7.91,3.93
0.94,6.95,3.96,5.97,0.98,3.100,
0.101,5.102,3.106,7.107,5.108,3.
109,7.113,1.114,7.115,0.116,7.11
7,0.118,1.119,3.124,7.129,5.131,
3.133,0.135,3

710DATA137,5.139,0.140,6.144,7.
146,6.148,0.152,6.154,0.155,6.1
56,4.180,4

720DATA29,0.44,1.50,3.54,0.57,
1.61,0.63,3.66,0.70,3.72,1.76,3.
77,1.79,3.84,0.85,1.86,3.88,0.91
7.92,1.93,0.94,5.95,3.96,5.97,1.
98,3.99,0.100,1.101,3.104,7.106
0.107,5.108,3.109,7.113,1.115,0.
117,1.118,7.121,0.122,3.123,1.1
24,7.130,5.131,7

730DATA134,0.135,7.136,5.148,1.
143,6.147,7.146,0.147,6.150,0.1
53,6.154,0.155,7.156,0.157,4.180
,4

740DATA28,0.44,1.49,3.53,0.57,
12.60,0.64,3.66,0.68,1.69,0.70,3.
72,1.73,0.75,3.76,1.78,7.79,8.
4,0.85,3.87,1.88,0.90,3.93,0.94,
3.95,0.96,3.99,0.100,3.103,7.106
0.107,5.108,1.109,3.113,1.115,0.
116,1.117,7.122,3.123,1.124,3.1
29,7.133,0.134,5

750DATA127,3.131,7.134,5.135,1.
138,0.144,6.147,7.149,0.153,5.1
55,0.156,5.157,4.180,4

760DATA28,0.43,1.49,3.52,0.55,
1.56,0.57,1.58,0.63,3.67,0.69,3.
70,1.71,0.73,1.74,3.75,1.77,7.80
0.84,3.87,1.89,3.90,1.93,0.94,3.
95,0.96,3.97,0.98,1.99,3.103,7.
107,0.108,5.110,3.112,1.113,7.11
4,1.115,0.116,7.118,3.119,1.127,
1.124,3.125,1

770DATA29,0.43,1.49,3.50,0.53,
1.54,0.55,1.60,0.64,6.69,1.71,0.
73,1.77,0.80,3.85,1.88,0.89,1.90
3.96,0.96,3.100,7.105,1.106,0.1
87,1.108,5.113,7.115,0.116,5.118
3.119,5.121,7.124,1.129,3.137,7

139,6,145,0,146,6,147,7,149,0,1
54,6,155,0,156,6
7900DATA157,4,180,4
7900DATA33,1,49,0,42,3,46,1,47,
3,50,0,53,1,56,0,57,1,58,0,59,1,
61,0,64,3,69,0,73,1,88,0,89,1,92
7,94,0,97,3,98,7,104,3,105,1,108
5,107,0,108,1,109,5,113,3,115,
0,116,1,117,5,120,7,124,1,127,5,
130,1,131,7,132,3,136,7,139,0,14
5,6,148,7,149,0
8000DATA154,6,155,0,156,4,180,4
8000DATA53,5,32,0,41,3,42,1,47,
3,49,0,51,1,53,0,54,1,56,0,58,1,
62,0,65,3,70,0,73,1,80,3,88,0,89,
1,90,3,91,1,92,3,96,1,97,3,105,
1,106,5,107,0,108,1,109,5,113,3,
114,5,120,6,122,1,128,3,131,5,13
2,7,137,0,146,6,151,0,152,7,154,
6,155,0,156,4
8200DATA180,4
8300DATA30,1,33,0,41,1,46,3,49,
0,50,1,53,0,54,1,55,0,67,3,74,0,
70,1,81,3,88,0,89,1,90,3,91,3,94
3,96,1,102,3,104,1,108,7,109,1,
110,5,115,3,116,1,117,5,119,6,12
0,1,128,5,131,1,134,3,137,1,140,
3,141,7,144,0,147,6,156,0,157,6,
158,4,180,4
8400DATA34,0,40,3,41,1,46,3,48,
0,49,1,54,0,55,1,56,0,63,3,88,0,
89,1,90,3,91,1,93,3,94,0,95,1,10
6,7,109,1,110,5,111,1,13,5,114,3,
117,1,117,7,118,6,121,1,125,5,1,
1,133,3,136,1,137,5,142,3,143
6,144,7,145,0,150,6,151,0,154,6,
156,0,157,6
8500DATA148,4,180,4
8600DATA33,0,40,3,43,1,45,3,48,
0,49,1,50,0,51,1,52,0,53,1,54,0,
55,0,57,0,60,1,64,3,77,0,80,3,83
0,84,1,85,3,88,0,89,1,90,3,91,0,
92,3,96,1,107,1,108,7,109,1,114,
5,115,3,116,1,117,7,118,6,120,1,
122,3,125,5,126,3,127,1,131,7,13
4,0,135,1,142,0
8700DATA145,6,153,0,154,6,157,4,
180,4
8800DATA31,0,35,1,37,0,40,3,44,
1,46,0,49,1,50,3,51,0,54,1,56,0,
57,1,58,0,60,1,61,3,67,7,73,3,75
1,76,3,80,0,83,3,84,0,85,1,86,3,
88,0,89,1,90,4,94,1,95,3,96,7,9
7,0,96,1,108,3,109,1,110,5,113,1
114,3,115,7,117,6,119,1,121,3,1,
23,7,124,5,125,3
9000DATA27,5,129,1,130,7,134,0,
135,0,136,6,137,1,141,7,144,0,1
51,6,153,0,155,6,157,4,180,4
9000DATA31,0,35,1,38,0,40,3,44,
1,45,3,47,0,50,3,51,0,55,1,56,0,
58,1,59,0,61,1,63,0,67,1,71,3,75
1,77,7,79,1,80,0,83,3,84,1,85,0,
86,1,87,3,88,0,89,1,90,7,92,0,9
3,1,94,3,97,0,96,1,105,5,108,3,1
09,1,110,5,113,3,115,7,116,5,119
1,120,3,122,7
9100DATA25,3,127,5,129,1,130,3,
131,7,132,0,133,7,134,2,135,0,1
36,1,137,6,139,1,140,6,141,0,146
6,150,0,154,6,155,4,180,4
9200DATA30,1,33,0,41,3,44,1,46,
0,49,1,50,6,132,1,67,0,69,1,71,3,
73,1,74,0,77,1,89,3,90,0,91,5,92
0,94,1,95,3,96,5,100,1,101,5,10
4,1,105,5,108,1,109,3,115,7,117,
3,120,7,125,3,129,7,132,1,133,2,
134,0,137,1,138,3,139,1,143,0,15
0,6,152,0,153,6
9300DATA40,0,156,4,180,4
9400DATA31,1,32,3,33,1,34,0,35,
1,36,0,42,1,47,0,56,1,58,0,69,1,
85,3,87,0,88,1,90,3,91,0,92,6,93
0,95,1,96,3,99,0,100,1,105,5,10
7,1,109,3,110,1,120,7,123,1,105,5,
7,132,5,133,2,134,7,135,2,136,0,
137,3,139,5,140,1,142,0,150,6,15
0,0,156,6,157,4
9500DATA180,4
9600DATA30,1,31,3,32,1,33,0,41,
1,46,0,56,1,59,0,67,1,68,0,69,1,
85,3,86,1,87,0,89,3,91,0,92,5,93
0,95,1,96,3,99,0,101,1,109,3,11
0,5,113,1,114,5,115,1,119,7,125,
3,130,7,132,5,133,2,134,7,135,2,
136,0,137,3,139,6,140,5,142,0,14
9,6,155,0,157,4
9700DATA180,4
9800DATA30,1,31,3,34,1,35,0,39,
1,43,0,44,1,46,0,55,3,56,0,61,3,
65,1,67,0,69,1,79,3,80,1,83,0,87,
1,88,0,90,3,91,0,92,5,93,95,1,
96,3,100,0,102,1,104,5,109,3,11
0,5,113,1,114,5,115,1,120,3,122,
1,123,3,125,7,129,3,130,7,132,1,
133,0,136,1
9900DATA137,3,138,5,140,1,142,6,
152,0,154,6,156,4,180,4
10000DATA31,1,32,3,35,0,44,3,45,
1,47,0,55,1,57,0,73,1,74,3,75,1,
77,3,78,1,79,3,81,1,87,3,88,1,91
0,92,5,93,0,95,5,96,3,100,0,103
1,104,5,108,1,109,3,110,5,113,1,
114,5,116,1,139,3,122,5,124,3,1,
27,7,129,3,130,7,133,1,134,0,136
0,132,1,140,0
10100DATA149,6,151,0,153,6,156,0,
158,4,180,4
10200DATA31,1,32,3,34,1,35,0,43,
3,44,1,47,0,51,1,55,0,64,1,77,3,
78,1,84,3,87,1,91,0,92,5,93,94,
0,96,5,99,3,101,0,103,3,104,1,1
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1,119,5,124,3,126,7,129,3,130,7,
134,1,135,0,136,1,142,0,144,7,1
45,6,149,0,153,6
10300DATA156,0,157,4,180,4
10400DATA33,3,35,0,51,1,59,3,60,
0,73,1,76,0,77,1,83,3,89,1,91,5,
92,0,93,3,94,0,97,5,100,7,102,0,
103,3,104,0,107,1,110,3,111,1,11
4,5,116,0,117,1,120,5,124,7,126,
3,128,7,131,3,133,1,134,3,135,0,
137,1,141,6,142,0,145,6,147,0,15
0,7,152,0,157,4
10500DATA180,4
10600DATA33,3,34,0,48,1,49,0,51,
1,53,0,56,1,59,3,62,1,64,0,77,1,
83,3,89,1,90,7,91,0,93,3,95,0,10
0,7,103,0,110,1,114,5,115,0,116,
1,121,5,124,7,126,1,128,3,130,7,
134,0,136,1,141,0,146,6,149,7,15
0,0,156,7,157,6,158,4,180,4
10700DATA31,0,33,3,34,0,48,1,50,
0,51,1,52,0,59,1,60,3,61,1,62,0,
76,1,85,0,87,3,90,7,92,0,93,3,96
0,100,7,103,0,111,1,116,0,118,5,
119,1,125,7,126,5,129,3,131,1,1
35,3,136,1,141,0,142,6,146,0,148
7,149,0,154,6,155,0,156,6,158,0,
159,4,180,4
10800DATA31,0,33,3,34,0,48,1,50,
0,51,1,52,0,58,1,59,3,60,1,62,0,
76,1,85,0,87,3,90,7,92,0,93,3,96
7,92,0,95,7,98,0,111,1,118,0,1,
20,1,126,5,128,7,130,1,135,5,108
1,140,3,146,6,147,0,151,6,157,0,
158,4,180,4
10900DATA32,0,33,3,34,0,44,1,45,
0,50,1,51,0,58,1,59,3,60,1,61,0,
68,1,70,3,71,0,79,1,83,0,92,6,94
0,95,7,99,0,104,7,105,0,113,5,1

15,0,150,6,155,0,157,4,180,4
11000DATA29,0,30,7,32,0,39,1,40,
0,51,1,46,0,62,1,63,0,64,1,65,0,
68,1,72,0,76,1,85,0,89,6,92,0,94
6,95,0,97,6,101,0,105,7,106,0,1
14,5,117,0,149,6,150,7,151,6,154
0,156,1,180,4
11100DATA29,0,37,1,40,0,45,1,47,
8,63,3,65,0,68,1,70,0,76,1,78,0,
83,1,86,0,91,6,94,0,95,6,96,0,98
6,102,0,105,7,107,0,115,6,117,0,
148,6,149,7,150,6,151,0,155,4,1
80,4
11200DATA32,1,33,0,34,1,35,0,45,
1,47,0,62,1,63,3,65,0,66,1,68,3,
70,1,71,0,75,1,79,0,82,1,83,3,85,
1,87,0,91,1,92,0,96,0,97,6,98,0,
100,6,105,0,108,6,114,0,116,7,1
23,6,137,0,146,6,148,7,149,6,150
0,154,4,180,4
11300DATA33,1,34,0,45,1,46,0,62,
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73,1,78,0,82,1,83,3,85,1,86,0,91,
1,93,0,96,9,99,0,102,6,129,7,13
6,0,138,6,142,0,145,6,147,7,149,
6,150,0,153,4,180,4
11400DATA32,0,44,1,45,0,62,1,63,
3,64,0,65,1,68,3,69,0,71,1,79,0,
80,1,85,0,86,1,91,0,92,1,94,0,97
6,100,0,102,6,110,0,115,6,117,0,
138,6,140,0,143,6,145,7,146,6,1
48,0,152,4,180,4
11500DATA38,1,39,0,46,1,47,0,65,
1,70,0,71,1,73,3,78,1,82,0,88,0,
86,1,90,0,91,1,93,0,112,7,114,0,
131,6,139,7,139,0,141,6,142,0,14
3,6,144,0,150,4,153,6,154,4,180,
4
11600DATA40,0,48,1,50,0,68,3,69,
1,70,0,71,1,78,3,80,1,84,3,85,0,
86,1,90,0,91,1,93,0,112,7,114,0,
131,6,138,7,139,0,141,6,142,0,14
3,6,144,0,150,4,180,4
11700DATA44,0,68,3,69,1,70,0,71,
1,75,0,76,1,78,3,81,1,84,3,85,1,
94,0,100,6,130,0,133,6,138,0,141
6,142,0,145,6,146,0,150,6,153,4,
180,4
11800DATA47,0,71,1,74,0,75,1,77,
3,78,1,81,3,82,0,83,1,85,3,87,1,
94,0,99,6,102,0,140,6,150,7,155,
6,153,4,180,4
11900DATA58,0,71,1,73,0,75,1,77,
3,78,0,79,1,82,0,83,1,86,3,87,1,
92,0,99,6,102,7,104,0,108,7,109,
6,111,0,112,6,120,0,135,5,137,0,
147,6,149,7,150,6,152,4,180,4
12000DATA63,0,74,1,76,3,77,0,79,
1,82,0,85,1,91,0,92,1,95,0,102,6
1,106,0,107,6,110,0,115,6,125,7,1
26,0,138,5,141,0,146,6,150,4,180,
4
12100DATA65,0,69,1,71,0,75,1,77,
0,79,1,83,0,85,0,91,0,92,1,95,0,
96,1,97,0,98,6,102,0,138,1,132,0,
140,3,141,0,146,6,149,4,180,4
12200DATA67,0,71,1,72,0,79,1,80,
0,84,1,87,0,92,1,94,0,100,7,102,
6,103,0,130,1,140,0,142,3,143,5,
144,6,146,4,180,4
12300DATA69,0,73,1,77,0,79,1,80,
0,92,1,94,0,131,1,140,0,141,3,14
2,5,144,6,145,4,180,4
12400DATA73,0,75,1,80,0,133,1,13
7,6,139,1,145,4,180,4
12500DATA74,0,89,4,90,0,131,6,13
5,1,136,5,139,0,144,4,180,4
1260 DATA76,0,80,4,85,0,87,4,99
0,125,6,134,0,180,4
12700DATA103,0,120,6,129,4,180,4
12800DATA107,0,116,6,129,4,180,4

PLAY

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